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060608 16179 U.S. PTO

UTILITY PATENT APPLICATION TRANSMITTAL

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

Attorney Docket No.	IPVBP002C1
First Inventor	CHEUNG et al.
Title	DIRECTIONAL HEARING ENHANCEMENT
Express Mail Label No.	EB 190 818 164 US

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. ☑ **Fee Transmittal Form** (e.g., PTO/SB/17)
   (Submit an original and a duplicate for fee processing)
2. ☑ **Applicant claims small entity status.** See 37 CFR 1.27.
3. ☑ **Specification** [*Total Pages* 30]
   Both the claims and abstract must start on a new page
   (For information on the preferred arrangement, see MPEP 608.01(a))
4. ☑ **Drawing(s)** (*35 U.S.C. 113*) [*Total Sheets* 12]
5. **Oath or Declaration** [*Total Sheets* 2]
   a. ☐ Newly executed (original or copy)
   b. ☑ A copy from a prior application (37 CFR 1.63(d))
   (for continuation/divisional with Box 18 completed)
   i. ☐ DELETION OF INVENTOR(S)
   Signed statement attached deleting inventor(s) name in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
6. ☑ **Application Data Sheet.** See 37 CFR 1.76
7. ☐ **CD-ROM or CD-R** in duplicate, large table or Computer Program *(Appendix)*
   ☐ Landscape Table on CD
8. **Nucleotide and/or Amino Acid Sequence Submission**
   (if applicable, items a. – c. are required)
   a. ☐ Computer Readable Form (CRF)
   b. Specification Sequence Listing on:
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      ii. ☐ Paper
   c. ☐ Statements verifying identity of above copies

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ACCOMPANYING APPLICATION PARTS

9. ☐ **Assignment Papers** (cover sheet & document(s))
   Name of Assignee_____
10. ☑ **37 CFR 3.73(b) Statement** *(when there is an assignee)* ☑ **Power of Attorney**
11. ☐ **English Translation Document** *(if applicable)*
12. ☐ **Information Disclosure Statement** (PTO/SB/08 or PTO-1449)
    ☐ Copies of citations attached
13. ☐ **Preliminary Amendment**
14. ☑ **Return Receipt Postcard** (MPEP 503)
    (Should be specifically itemized)
15. ☐ **Certified Copy of Priority Document(s)**
    (if foreign priority is claimed)
16. ☐ **Nonpublication Request** under 35 U.S.C. 122(b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent.
17. ☐ Other:_____

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

☑ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No.: 10/826,527

Prior application information: *Examiner* PENDLETON, DIONNE *Art Unit:* 2627

19. CORRESPONDENCE ADDRESS

☑ The address associated with Customer Number: 34071 *OR* ☐ Correspondence address below

Name					
Address					
City		State		Zip Code	
Country		Telephone		Email	

Signature	C. Douglass Thomas	Date	June 6, 2008
Name (Print/Type)	C. Douglass Thomas	Registration No. (Attorney/Agent)	32,947

This collection of information is required by 37 CFR 1.53(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Effective on 12/08/2004.
Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL For FY 2008

SPTO

☑ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT	($)	565.00

Complete if Known	
Application Number	Unassigned
Filing Date	herewith
First Named Inventor	CHEUNG et al.
Examiner Name	Unassigned
Art Unit	Unassigned
Attorney Docket No.	IPVBP002C1

METHOD OF PAYMENT (check all that apply)

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

☑ Deposit Account Deposit Account Number: 50-3874 Deposit Account Name: _____

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FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

Application Type	FILING FEES Fee ($)	FILING FEES Small Entity Fee ($)	SEARCH FEES Fee ($)	SEARCH FEES Small Entity Fee ($)	EXAMINATION FEES Fee ($)	EXAMINATION FEES Small Entity Fee ($)	Fees Paid ($)
Utility	310	155	510	255	210	105	515.00
Design	210	105	100	50	130	65	
Plant	210	105	310	155	160	80	
Reissue	310	155	510	255	620	310	
Provisional	210	105	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee ($)	Small Entity Fee ($)
Each claim over 20 (including Reissues)	50	25
Each independent claim over 3 (including Reissues)	210	105
Multiple dependent claims	370	185

Total Claims	Extra Claims	Fee ($)	Fee Paid ($)
22 - 20 or HP =	2	x 25	= $50

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

Indep. Claims	Extra Claims	Fee ($)	Fee Paid ($)
3 - 3 or HP =	0	x 0	= 0

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 $260 ($130 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee ($)	Fee Paid ($)
42 - 100 =	_____	/ 50 = _____ (round up to a whole number)	x _____	= _____

4. OTHER FEE(S)

Fees Paid ($)

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

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

SUBMITTED BY

Signature	C. D. Thomas	Registration No. (Attorney/Agent) 32,947	Telephone 650-903-9200
Name (Print/Type)	C. Douglass Thomas		Date June 6, 2008

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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DIRECTIONAL HEARING ENHANCEMENT SYSTEMS

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation of U. S. Patent Application No. 10/826,527, filed April 15, 2004, and entitled "DIRECTIONAL HEARING ENHANCEMENT SYSTEMS," which application claims priority of: (i) U.S. Provisional Patent Application No. 60/462,570, filed April 15, 2003, and entitled "WIRELESS COMMUNICATION SYSTEMS OR DEVICES, HEARING ENHANCEMENT SYSTEMS OR DEVICES, AND METHODS THEREFOR," which is hereby incorporated herein by reference; (ii) U.S. Provisional Patent Application No. 60/469,221, filed May 12, 2003, and entitled "WIRELESS COMMUNICATION SYSTEMS OR DEVICES, HEARING ENHANCEMENT SYSTEMS OR DEVICES, DIRECTIONAL SPEAKER FOR ELECTRONIC DEVICE, PERSONALIZED AUDIO SYSTEMS OR DEVICES, AND METHODS THEREFOR," which is hereby incorporated herein by reference; and (iii) U.S. Provisional Patent Application No. 60/493,441, filed August 8, 2003, and entitled "WIRELESS COMMUNICATION SYSTEMS OR DEVICES, HEARING ENHANCEMENT SYSTEMS OR DEVICES, DIRECTIONAL SPEAKER FOR ELECTRONIC DEVICE, AUDIO SYSTEMS OR DEVICES, WIRELESS AUDIO DELIVERY, AND METHODS THEREFOR," which is hereby incorporated herein by reference.

[0002] This application is also related to: (i) U.S. Patent Application No. 10/826,529, filed April 15, 2004, now U.S. Patent No. 7,269,452, and entitled, "DIRECTIONAL WIRELESS COMMUNICATION SYSTEMS," which is hereby incorporated herein by reference; (ii) U.S. Patent Application No. 10/826,531, filed April 15, 2004, and entitled, "DIRECTIONAL SPEAKER FOR PORTABLE ELECTRONIC DEVICE," which is hereby incorporated herein by reference; (iii) U.S. Patent Application No. 10/826,537, filed April 15, 2004, and entitled, "METHOD AND APPARATUS FOR LOCALIZED DELIVERY OF AUDIO SOUND FOR ENHANCED PRIVACY," which is hereby incorporated herein by reference; and (iv) U.S. Patent Application No.

10/826,528, filed concurrently, and entitled, "METHOD AND APPARATUS FOR WIRELESS AUDIO DELIVERY," which is hereby incorporated herein by reference.

BACKGROUND OF THE INVENTION

Filed of the Invention

[0003] The present invention relates generally to a hearing enhancement system, and more particularly, to a hearing enhancement system whose audio signals are directional.

Description of the Related Art

[0004] A significant portion of our population has a certain degree of hearing loss. This can be due to, for example, heredity, noise exposure or simply aging. Hearing aids have been the traditional approach to ameliorate hearing difficulties. However, out of the 26 to 28 million people who are hearing impaired in the United States, only about 20% of them actually wear any hearing aids.

[0005] One reason people avoid wearing hearing aids is because hearing aids are not inexpensive. Typically, they range from about a thousand US dollars for a pair of analog hearing aids to five thousand US dollars for a pair of digital hearing aids.

[0006] Another reason for the lack of wide adoption of hearing aids is that there is still a stigma towards wearing them. People who need hearing aids are known as "hearing impaired." When they go to a dispenser for hearing aids, they are still called "patients." If given a choice, most people do not want others to know that they need hearing aids. As a result, many people with mild or moderate hearing loss do not wear one.

[0007] Basically, there are three major types of hearing aids--the "behind-the-ear" (BTE) style, the "in-the-ear" (ITE) style, and the completely-in-the-canal (CIC) style. The BTE hearing aids have a number of advantages. They are more applicable for those with severe hearing loss. Through the use of venting, they reduce to a certain degree the effects of occlusion, which is the hollowness, echoic or stuffed sensation of

hearing one's own voice as one talks with a hearing aid inside one's ear. The BTE aids are encapsulated in relatively thick-walled housings. The housing serves to protect components in the hearing aids from harsh conditions due to temperature, sweat, pressure and impact. However, for those wearing hearing aids, they usually prefer a more inconspicuous type, such as an ITE (or CIC) hearing aid, which is located inside the ear canal.

[0008] The ITE (or CIC) designs have other benefits. People who use a telephone typically prefer them because they do not require a telephone loop to work with telephone conversations. People who wear glasses usually also prefer them because the hearing aids do not interfere with the arms of the glasses.

[0009] On the other hand, just like the BTE, individual ear molds have to be made for the ITE and the CIC hearing aids. The shell of the ITE hearing aid has to be individually configured based on an impression of the patient's canal. Not only is the hearing aid individually formed, a technician, through experience and craftsmanship, has to custom fit the hearing aid into the patient's canal. For a BTE hearing aid, an ear mold that fits the individual's ear canal is also made. This makes the hearing aid a custom product. If a hearing aid is lost or damaged, it is not as easily replaced.

[0010] The repair process can be annoying as well. If a user's hearing aid has to be repaired, the process can take a significant amount of time. Except for well-known brands or for manufacturers that offer a worldwide service, repair parts may not be immediately available. Since most hearing aids are still dispensed through local or regional clinics, they may not have the available parts. Though there is usually a loaner's program that allows the user to borrow a BTE aid during this period, the user may have to live, for days or weeks, with a hearing aid that may not feel comfortable.

[0011] Another challenge of an ITE (or CIC) hearing aid is in positioning its receiver and microphone because slight misalignment can lead to feedback and resonance.

[0012] Users want the ITE (or CIC) hearing aids to be small to make them inconspicuous. However, the inherent small size of the hearing aids brings along its problems. Due to the small size, the walls of its shell are thinner, making them more

vulnerable to damage from heat, sweat and abuse than BTE hearing aids. Further, due to its small size and shape, ITE (or CIC) hearing aids are more difficult to handle. For example, sometimes it is cumbersome to switch batteries. And, it is also easier to accidentally drop an ITE (or CIC) aid than a BTE hearing aid. Finally, an ITE (or CIC) hearing aid custom-fits into the user's ear canal. The occlusion effects can be quite disturbing, particularly for the first time hearing aid users.

[0013] Hearing tends to decrease gradually. A person with mildly-decreased hearing normally does not need the same degree of hearing assistance as would one with severely-impaired hearing. Nevertheless, such a person could benefit from mild or moderate enhancement to their hearing.

[0014] It should be clear from the foregoing that there is still a need for improved techniques to assist those who are hearing impaired.

SUMMARY OF THE INVENTION

[0015] The present invention pertains to a hearing enhancement system that enhances an individual's hearing based on a directional speaker. Many people are mildly or moderately hearing impaired. The decrease in hearing ability may not be to the point where one needs a dedicated, traditional hearing aid. Even so, it would certainly be advantageous to provide some hearing improvement. A number of embodiments in the present invention are particularly suitable for those with mild or moderate hearing loss.

[0016] One embodiment of the hearing enhancement system includes an interface unit that has the directional speaker and a microphone. In another embodiment, the system also includes a base unit. A user can wear the system on his clothing, and the speaker can be directed towards an ear of the user when worn.

[0017] In one embodiment, the microphone receives audio signals, which are transformed by the system into ultrasonic signals. Then, the directional speaker transmits the ultrasonic signals in air towards an ear of the user. The transmitted signals are transformed back into audio signals by air to form the output audio signals. At least a portion of the output audio signals have higher power with respect to the received audio signals at corresponding frequencies to enhance the hearing of the user.

[0018] The directivity of the audio signals is increased due to the ultrasonic signals. In one embodiment, the directivity is further increased by using a phase array of speaker devices. The array can generate the directional audio signals by constructive interference of signals from the individual devices. Based on the array, the direction of the audio signals can be steered by changing the relative phases among the devices.

[0019] Typically, the hearing of both ears decreases together. Hence, a user might use two interface units, one for the left and the other for the right ear.

[0020] The decrease in hearing may not be uniform across all audio frequencies. As a result, amplifying the received audio signals can be frequency dependent. One approach focuses on amplifying high audio frequencies. Another approach amplifies

only a certain band of the audio frequencies. With the lower audio frequencies typically being louder, the band of amplification can be the higher audio frequencies. Since the directional speaker is not attached to or inserted in the ear, the user can still hear the audio signals directly from the audio source. Not only would such an approach eliminate the occlusion effect, with no hearing aid in the ear canal, the natural resonance of the ear canal (typically around 2700 Hz) boosts the audio signal strength in the 2 to 3 kHz ranges. Furthermore, without the hearing aid in the ear canal, there is no insertion loss due to the hearing aid.

[0021] In a third approach, the user's hearing is profiled so that frequency amplification is tailored to the user. The user's hearing profile can also be stored in a memory device (such as a removable memory card or stick), which can be inserted into the system. The system can then adjust the amplification of the audio signals across the frequencies based on the user's hearing profile. Frequency-dependent amplification has the added advantage of power conservation because certain audio frequencies may not even need amplification.

[0022] A number of embodiments include power management features. One embodiment includes a manual on/off switch allowing the user to turn the system off when desired. In another approach, the system is on-demand. If the signal-to-noise ratio of the incoming audio signals is below a pre-set threshold, the system can be placed in a standby mode (e.g., low power mode).

[0023] Another approach that can manage power is to use a directional microphone. This approach can also improve the signal-to-noise ratio. There can be more than one directional microphone, each pointing at a specific direction.

[0024] The power level of the output audio signals can also be environment dependent. For example, the power of the output audio signals is increased in a noisier environment. But, as the environment becomes very noisy, the amplification can cease or even be decreased.

[0025] The power of the output audio signals can be also increased through different mechanisms. This can be done, for example, by increasing the surface areas of the medium responsible for generating the output audio signals. In embodiments

based on ultrasonic transformation, one approach to increase power is to increase the demodulation efficiency. In yet another embodiment, power is increased based on a phase-array of speaker devices, which further increases the directivity of the audio signals. This embodiment has the added advantage of power reduction. With the audio signals more confined, less power is needed to generate the audio signals. In one embodiment, the output audio signals can also be steered to more accurately target the user's ear.

[0026] With the ear canal remaining open, the user can still use a phone directly. But, in one embodiment, when there is an incoming phone call, the system changes its mode of operation and functions as a cell phone. If the system is used as a phone, since the audio signals are transmitted in an open environment, people next to the user might pick up the audio signals. Different approaches can be used to improve privacy. The audio signal propagation angle already serves to provide improved privacy. The virtual or physical cone of the audio signals typically propagates from a lower position (elevation) to a higher position towards the ear of the user. With such a propagation direction, signals reflected from the head tend to radiate upward. This reduces the chance of having bystanders eavesdrop on the conversation.

[0027] Privacy can be enhanced based on frequency-dependent amplification because certain frequency ranges may not even be amplified. Another approach to improve privacy is to reduce the power of the output audio signals. Yet another approach to enhance privacy is to further increase the directivity of the audio signals.

[0028] With the system being used as a phone, the system can have a directional microphone pointing at the head of the user to pick up the user's voice during a phone conversation.

[0029] In private, hearing impaired people sometimes might have a tendency to increase the sound level of audio or video instruments a bit too high. On the other hand, in public, hearing impaired people sometimes might have difficulty hearing. In one embodiment, the system is further designed to pick up, capture or access audio signals from a number of portable or non-portable instruments. Audio signals from these instruments can be transmitted through wire to the system. Alternatively, audio

signals from these instruments can be transmitted wireless, such as through WiFi or Bluetooth, to the system. The system then converts the wireless signals to audio signals for the user to comfortably listen to the signals. Examples of such instruments include home entertainment units, phones, microphones at a conference, and speakers at a movie theaters.

[0030] Other aspects and advantages of the present invention will become apparent from the following detailed description, which, when taken in conjunction with the accompanying drawings, illustrates by way of example the principles of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0031] FIG. 1 shows embodiments of the present invention.

[0032] FIG. 2 shows a person wearing one embodiment of the present invention.

[0033] FIG. 3 shows different embodiments regarding frequency-dependent amplification of the present invention.

[0034] FIG. 4 shows a number of embodiments regarding calibration of the present invention.

[0035] FIG. 5A shows a number of embodiments regarding power management of the present invention.

[0036] FIG. 5B shows an embodiment of the interface unit with an electrical connection.

[0037] FIGS. 6A-6C show different embodiments regarding microphones for use with the present invention.

[0038] FIG. 7 shows embodiments of the present invention that can also function as a phone.

[0039] FIG. 8 is a flow diagram of call processing according to one embodiment of the invention.

[0040] FIG. 9 shows a number of embodiments regarding improving privacy of the present invention.

[0041] FIG. 10 shows a number of embodiments of the present invention accessing audio signals from other instruments wirelessly or through wired connection.

[0042] FIG. 11 shows a hearing enhancement system having a computing unit according to one embodiment of the invention.

[0043] Same numerals in Figures 1-11 are assigned to similar elements in all the figures. Embodiments of the invention are discussed below with reference to Figures 1-11. However, those skilled in the art will readily appreciate that the detailed description

given herein with respect to these figures is for explanatory purposes as the invention extends beyond these limited embodiments.

DETAILED DESCRIPTION OF THE INVENTION

[0044] The present invention pertains to a hearing enhancement system that enhances an individual's hearing. A number of embodiments in the present invention are particularly suitable for those with mild or moderate hearing loss.

[0045] FIG. 1 shows one embodiment of a hearing enhancement system 10 of the present invention. The hearing enhancement system 10 includes an interface unit 14, which includes a directional speaker 16 and a microphone 18. The embodiment may also include a base unit 12, which has or, can couple to, a power source. The interface unit 14 can electrically couple to the base unit 12. In one embodiment, the base unit 12 can be integrated within the interface unit 14. The coupling can be in a wired (e.g., cable) or a wireless (e.g., Bluetooth technologies) manner.

[0046] FIG. 2 shows a person wearing an interface unit 100 of the present invention on his jacket 102. The interface unit 100 can, for example, be the interface unit 14 shown in FIG. 1. Again, the interface unit 100 includes a directional speaker 104 and a microphone 106. The speaker 104 can be in a line of sight of an ear of the user.

[0047] Consider the scenario where a friend is speaking to the user. In one approach, the microphone 106 picks up the friend's speech, namely, her audio signals. A hearing enhancement system according to the invention can then use the audio signals to modulate ultrasound signals. Then, the directional speaker 104 transmits the modulated ultrasonic signals in air towards the ear of the user. The transmitted signals are demodulated in air to create the output audio signals. Based on ultrasound transmission, the speaker 104 generates directional audio signals and sends them as a cone (virtual cone) 108 to the user's ear. In another approach, the directional speaker 104 includes a physical cone or a horn that directly transmits directional audio signals. In yet another approach, the audio signals from the speaker can be steered to the ear or the ear canal, whose location can be identified through mechanisms, such as pattern recognition. Different embodiments of the directional speakers have been described in U.S. Patent Application No. 10/826,529, filed April 15, 2004, and entitled

"DIRECTIONAL WIRELESS COMMUNICATION SYSTEMS," which is hereby incorporated herein by reference.

[0048] Typically, hearing of both ears decreases together. In a sense, this is similar to our need to wear glasses. Rarely would one eye of a person need glasses, while the other eye has 20/20 vision. As a result, there can be two interface units, one for the left ear and another for the right ear. The left ear unit can be on the left shoulder, and the right ear unit can be on the right shoulder. These two interface units can be electrically coupled, or can be coupled to one base unit. Again, the coupling can be wired or wireless. In another approach, the interface unit can be worn by the user as a pendant on a necklace in front of the user. Output audio signals can then be propagated to both ears.

[0049] In one embodiment, the system is designed to operate in the frequency range between 500 Hz to 8 kHz. Typically, a user's hearing impairment is not the same across all audio frequencies. For example, in English, the user might be able to easily pick up the sound of vowels, but not the sound of consonants, such as "S" and "P". FIG. 3 shows different embodiments of the invention regarding frequency-dependent amplification of the received audio signals. Note that amplification is not limited to amplifying the received audio signals directly. For example, in the embodiments using ultrasonic signals to generate output audio signals, amplification can mean the power level of the output audio signals being higher than the received audio signals. This can be through increasing the power of the ultrasonic signals.

[0050] One approach for frequency-dependent amplification assumes that the decreased in hearing typically starts at high frequencies, such as above 2 to 3 kHz. So, hearing may need more assistance at the high frequency range. In this approach, one embodiment amplifies the audio signals so that around the entrance of the ear, the signals can have sound pressure level ("SPL") of about 80 dB from 2 kHz to 4 kHz. For frequencies below 2 kHz, the SPL is lower, such as, for frequencies lower than 500 Hz, the maximum SPL can be below 55 dB. In one embodiment, the SPL of the output audio signals can be 70 dB from 1.5 kHz to 4 kHz, and the 3 dB cutoff is also at 1.5 kHz. With a roll off being 12 dB/octave, at 750 Hz, the SPL becomes about 58 dB.

[0051] Another frequency-dependent amplification approach assumes that most information in the audio signals resides within a certain frequency band. For example, about 70% of the information in the audio signals can be within the frequency range of 1 to 2 kHz. Since the ear canal remains open and the user may only be mildly or moderately hearing impaired, the user can be hearing the audio signals directly from his sender (i.e., without assistance provided by the hearing enhancement system). In this approach, the system filters audio signals in the identified frequency range, such as the 1 to 2 kHz range, and processes them for amplification and transmission to the user. For frequencies not within the frequency band, they are not processed for amplification. The user can pick them up directly from the sender.

[0052] Low to mid frequencies, such as those below 2 kHz, are typically louder. Since the hearing enhancement system does not require having any hearing aid inserted into the ear, the low to mid frequencies can be received at the ear unaltered. Frequencies in the mid to high range, such as from 2000-3000 Hz, will be in the natural resonance of the ear canal, which is typically around 2700 Hz. As a result, these frequencies can be increased by about 15 dB. With no hearing aid inserted into one ear, the audio signals do not experience any insertion loss, and there is also no occlusion effect due to the user's own voice.

[0053] In a third approach, amplification across frequencies is directly tailored to the hearing needs of the user. This can be done through calibration. This third approach can also be used in conjunction with either the first approach or the second approach.

[0054] Frequency-dependent amplification has the added advantage of power conservation because certain frequency bands may not need or may not have amplification.

[0055] In one embodiment, the user has the option of manually changing the amplification of the system. The system can also have a general volume controller that allows the user to adjust the output power of the speaker. This adjustment can also be across certain frequency bands.

[0056] FIG. 4 shows a number of embodiments regarding calibration of a user's hearing across various frequencies. Calibration enables the system to determine (e.g., estimate) the hearing sensitivity of the user. Through calibration, the user's hearing profile can be generated. The user can perform calibration by himself. For example, the audio frequencies are separated into different bands. The system generates different SPL at each band to test the user's hearing. The specific power level that the user feels most comfortable would be the power level for that band for the user. After testing is done for all of the bands, based on the power levels for each band, the system creates the user's personal hearing profile. In this calibration process, the system can prompt the user and lead the user through an interactive calibration process.

[0057] In another embodiment, calibration can be done remotely through a web site. The web site can guide the user through the calibration process. This can be done, for example, by the user being positioned proximate to a computer terminal that is connected through the Internet to the web site. The terminal has a speaker or headset that produces audio sounds as part of the calibration process.

[0058] Instead of the user, this calibration process can also be done by a third party, such as an audiologist.

[0059] The user's hearing profile can be stored in the hearing enhancement system. If the calibration is done through a computer terminal, the hearing profile can be downloaded into the hearing enhancement system wirelessly, such as through Bluetooth or infrared technology. The hearing profile can alternatively be stored in a portable media storage device, such as a memory stick. The memory stick could be inserted into the hearing enhancement system, or some other audio generating device, which desires to access the hearing profile and personalizes the system's amplification across frequencies to the user.

[0060] The system can also periodically alert the user for re-calibration. The period can be, for example, once a year. The calibration can also be done in stages so that it is less onerous and less obvious that a hearing evaluation is being performed.

[0061] Since the ear canal is open, the user can be hearing the audio signals both from the sender and the system. In one embodiment, to prevent echoing effect,

signal processing speed of the system cannot be too low. Typically, the user would not be able to distinguish two identical sets of audio signals if the difference in arrival times of the two signals is below a certain delay time, such as 10 milliseconds. In one embodiment, the system's signal processing speed is faster than that the certain delay time. One approach to transform the input audio signals to ultrasonic signals depends on analog signal processing. Another approach to transform the input audio signals to ultrasonic signals depends on digital signal processing.

[0062] Since the system might be on continuously for a long duration of time, and can be amplifying across a broad range of the audio frequencies, power consumption can be an issue. FIG. 5A shows a number of embodiments for managing power consumption of the system. One embodiment includes a manual on/off switch, which allows the user to manually turn the system off as he desires. The on/off switch can be on a base unit, an interface unit, or a remote device. This on/off switch can also be voice activated. For example, the system is trained to recognize specific recitation, such as specific sentences or phrases, and/or the user's voice. To illustrate, when the user says sentences like any of the following, the system would be automatically turned on: What did you say? What? Louder. You said what?

[0063] The system can be on-demand. In one embodiment, the system can identify noise (e.g., background noise), as opposed to audio signals with information. To illustrate, if the audio signals across broad audio frequency ranges are flat, the system could assume that the input audio signals are noise. In another approach, if the average SPL of the input audio signals is below a certain level, such as 40 dB, the system would assume that there are no audio signals worth amplifying. In any case, when the system recognizes that signals are not to be amplified, the system can then be deactivated, such as to be placed into a sleep mode, a reduced power mode or a standby mode.

[0064] With the system operating on-demand, when the sender stops talking for a duration of time, the system can be deactivated. This duration of time can be adjustable, and can be, for example, 10 seconds or 10 minutes. In another approach, only when the signal–to-noise ratio of the audio signals is above a preset threshold

would the system be activated (i.e., awakened from the sleep mode, the reduced power mode or the standby mode).

[0065] Another approach to manage power consumption can make use of a directional microphone. This approach can improve the signal-to-noise ratio. The gain at specific directions of such a microphone can be 20 dB higher than omni-directional microphones. The direction of the directional microphone can vary with application. However, in one embodiment, the direction of the directional microphone can be pointing forward or outward from the front of the user. The assumption is that the user typically faces the person talking to him, and thus it is the audio signals from the person in front of him that are to be enhanced.

[0066] The system, namely, the interface unit, can have more than one directional microphone, each pointing in a different direction. FIG. 6A shows an interface unit 202 with four directional microphones pointing in four orthogonal directions. With the microphones in symmetry, the user does not have to think about the orientation of the microphones if the user is attaching the interface unit to a specific location on his clothing.

[0067] FIGS. 6B-6C show interface units 204 and 206, each with two directional microphones pointing in two orthogonal directions. For the two interface units 204 and 206 shown in FIG. 6B-6C, one unit can be on the left shoulder and the other unit on the right shoulder of the user, with the user's head in between the interface units in FIG. 6B and FIG. 6C.

[0068] The amplification of the system can also depend on the ambient power level, or the noise level of the environment of the system. One approach to measure the noise level is to measure the average SPL at gaps of the audio signals. For example, a person asks the user the following question, "Did you leave your heart in San Francisco?" Typically, there are gaps between every two words or between sentences or phrases. The system measures, for example, the root mean square ("rms") value of the power in each of the gaps, and can calculate another average among all of the rms values to determine the noise level. In one embodiment, the system increases the gain of the system so as to ensure that the average power of the

output audio signals is higher than the noise level by a certain degree. For example, the average SPL of the output audio signals can be 10 dB above the noise level.

[0069] In another embodiment, if the average power level of the environment or the ambient noise level is higher than a threshold value, signal amplification is reduced. This average power level can include the audio signals of the person talking to the user. The rationale is that if the environment is very noisy, it would be difficult for the user to hear the audio signals from the other person anyway. As a result, the system should not keep on amplifying the audio signals independent of the environment. For example, if the average power level of the environment is more than 75 dB, the amplification of the system is reduced, such as to 0 dB.

[0070] Another power management approach is to increase the power of the audio signals. One embodiment to create more power is to increase the surface area of the medium responsible for generating the output audio signals. For example, if audio signals are generated by a piezoelectric film, one can increase the surface area of the film to increase the power of the signals.

[0071] A number of embodiments are based on ultrasonic demodulation or mixing. To increase the output power of such embodiments, one can again increase the surface area of the medium generating the ultrasonic signals. As an example, a 1-cm diameter bimorph can give 140 dB ultrasonic SPL. The device may need about 0.1 W of input power. Ten such devices would increase output power by about 20 dB.

[0072] Another approach to increase power is to increase the demodulation or mixing efficiency of the ultrasonic signals by having at least a portion of the transformation performed in a medium other than air. Depending on the medium, this may make the directional speaker more power efficient. Such approaches have been described in the U.S. Patent Application No. 10/826,529, now U.S. Patent No. 7,269,452, entitled, "DIRECTIONAL WIRELESS COMMUNICATION SYSTEMS," filed April 15, 2004.

[0073] The system (interface unit and /or the base unit) can include one or more rechargeable batteries. These batteries can be recharged by coupling the system to a battery charger. Another feature of the system that may be provided is one or more

electrical connections on the system so as to facilitate electrical connection with a battery charger. For example, when the power source for the system is a rechargeable battery, the ability to charge the battery without removing the battery from the system is advantageous. Hence, in one embodiment, the system includes at least one connector or conductive element (e.g., terminal, pin, pad, trace, etc.) so that the electrical coupling between the rechargeable battery and the charger can be achieved. In this regard, the electrical connector or conductive element is provided on the system and electrically connected to the battery. The placement of the electrical connector or conductive element on the system serves to allow the system to be simply placed within a charger. Consequently, the electrical connector or conductive element can be in electrical contact with a counterpart or corresponding electrical connector or conductive element of the charger.

[0074] FIG. 5B shows an embodiment of the interface unit 150 with an electrical connection 152 and a cover 154. The interface unit 150 can be the interface unit 14 shown in FIG. 1. The electrical connection 152 can be a USB connector. With the cover 154 removed, the connection 152 can be used, for example, to couple to a battery charger to recharge a battery within the interface unit 150.

[0075] In one embodiment, the charger can be considered a docking station, upon which the system is docked so that the battery within the system can be charged. Hence, the system can likewise include an electrical connector or conductive element that facilitates electrical connection to the docking station when docked.

[0076] With the ear canal remaining open, the user can still use a phone directly. However, in one embodiment, the system, which can include the base unit, can also have the electronics to serve as a cell phone. FIG. 7 shows such an embodiment. When there is an incoming phone call, the system can change its mode of operation and function as a cell phone. The system can alert the user of an incoming call. This can be through, for example, ringing, vibration or a blinking light. The user can pick up the call by, for example, pushing a button on the interface unit. Picking up the call can also be through an activation mechanism on the base unit or a remote control device.

[0077] FIG. 8 is a flow diagram of call processing 400 according to one embodiment of the invention. The call processing 400 is performed using the system. For example, the system can be the system shown in FIG. 1.

[0078] The call processing 400 begins with a decision 402 that determines whether a call is incoming. When the decision 402 determines that there is no incoming call, the call processing 400 waits for such a call. Once the decision 402 determines that a call is incoming, the system is activated 408. Here, the wireless communications capability of the system is activated (e.g., powered-up, enabled, or woken-up). The user of the system is then notified 410 of the incoming call. In one embodiment, the notification to the user of the incoming call can be achieved by an audio sound produced by the system (via a speaker). Alternatively, the user of the system could be notified by a vibration of the system, or a visual (e.g., light) indication provided by the system. The base unit could also include a ringer that provides audio sound and/or or vibration indication to signal an incoming call.

[0079] Next, a decision 412 determines whether the incoming call has been answered. When the decision 412 determines that the incoming call has not been answered, the base unit can activate 414 a voice message informing the caller to leave a message or instructing the caller as to the unavailability of the recipient.

[0080] On the other hand, when the decision 412 determines that the incoming call is to be answered, the call can be answered 416 at the base unit. Then, a wireless link is established 418 between the interface unit and the base unit. The wireless link is, for example, a radio communication link such as utilized with Bluetooth or WiFi networks. Thereafter, communication information associated with the call can be exchanged 420 over the wireless link. Here, the base unit receives the incoming call, and communicates wirelessly with the interface unit such that communication information is provided to the user via the system. The user of the system is accordingly able to communicate with the caller by way of the system and, thus, in a hands-free manner.

[0081] A decision 422 then determines whether the call is over (completed). When the decision 422 determines that the call is not over, the call processing 400

returns to repeat the operation 420 and subsequent operations so that the call can continue. On the other hand, when the decision 422 determines that the call is over, then the system is deactivated 424, and the wireless link and the call are ended 426. The deactivation 424 of the system can place the system in a reduced-power mode. For example, the deactivation 424 can power-down, disable, or sleep the wireless communication capabilities (e.g., circuitry) of the system. Following the operation 426, as well as following the operations 406 and 414, the call processing 400 for the particular call ends.

[0082] If the system also functions as a phone, the system can have a directional microphone pointing at the head of the user. One such embodiment is shown in FIG. 6A.

[0083] Operating the system as a phone can create different concerns as opposed to operating the unit as a hearing enhancement system. Since the audio signals are transmitted in an open environment, people in the user's immediate neighborhood might pick up some of the audio signals. If the SPL is 80 dB when the signals reach the user's head, signals reflected from the head can be 60 dB. Such a level may be heard by people in the immediate vicinity of the user. The user might not want people to pick up what he is hearing. In other words, the user may prefer more privacy.

[0084] FIG. 9 shows a number of embodiments regarding improving privacy of the present invention. The audio signal propagation angle can inherently improve privacy. The cone of the audio signals typically propagates from low to high in order to get to an ear of the user. For example, from the user's shoulder to an ear of the user, the elevation angle can be 45 degrees. One advantage of such a propagation direction is that most of the audio signals reflected from the head radiate towards the sky above the head. This reduces the chance of having the audio signals being eavesdropped particularly when the signal power is going down as the square of the propagation distance. Various other propagation directions can be utilized, as discussed in greater detail below.

[0085] Privacy can be enhanced based on frequency-dependent amplification. Since certain audio frequencies may not be amplified, and may be relatively low in SPL, their reflected signals can be very low. This reduces the probability of the entire audio signals being heard by others.

[0086] Another approach to improve privacy is to reduce the highest power level of the output audio signals to below a certain threshold, such as 70 dB. This level may be sufficient to improve the hearing of those who have mild hearing loss.

[0087] Yet another approach to enhance privacy is to further focus the beam of the audio signals. For the embodiment based on transforming ultrasonic frequencies, narrowing the cone can be done, for example, by increasing the carrier frequency of the audio signals. Typically, the higher the carrier frequency, the narrower the cone, such as a cone created by 100 kHz signals typically being narrower than a cone created by 40 kHz signals. Not only can the cone be narrowed, sidelobes can also be suppressed. Another approach to narrow the cone is to increase the gain of the cone or the horn that generates the audio signals.

[0088] A focused beam has the added advantage of better power conservation. With the audio signals restricted to a smaller cone, less power is needed to generate the audio signals.

[0089] In private, such as at home, hearing impaired people sometimes might have a tendency to increase the sound level of audio or video instruments a bit too high. On the other hand, in public, hearing impaired people sometimes might have difficulty hearing. In one embodiment, the system is further designed to pick up, capture or access audio signals from portable or non-portable instruments, with the interface unit serving as a personalized listening unit.

[0090] Audio signals from these instruments can be transmitted through wire to the system. The interface unit can provide an electrical input for connecting to the instrument by wires. If transmission is wireless, the system can be designed to include the electronics to capture wireless signals from the instruments through a wireless local area network, such as WiFi or Bluetooth. The audio signals from these instruments can

be up-converted and transmitted as a WiFi signal to be picked up by the system. The system then down-converts the WiFi signal to re-generate the audio signals for the user.

[0091] FIG. 10 shows examples of such other portable or non-portable instruments. The instruments can be used in a private environment, such as at home, or attached to the user. This can include entertainment units, such as televisions, stereo systems, CD players, or radios. As an example, assume the user is working at the backyard and the stereo system is in the living room. Based on this technique, the user can enjoy the music without the need to crank up its volume. Private use can include a phone, which can be a desktop phone with a conference speaker or a cell phone. As yet another example, the system can function as the headset of a phone, and can be coupled to the phone in a wireless manner, such as through WiFi or Bluetooth.

[0092] Regarding public use, the user can be at a conference or a theater. The system can be coupled to the conference microphone or the theater speaker wirelessly, and thus be capable of capturing and enhancing the audio signals therefrom.

[0093] In a number of embodiments described, the directional speaker generates ultrasonic signals in the range of 40 kHz. One of the reasons to pick such a frequency is for power efficiency. However, to reduce leakage, cross talk or to enhance privacy, in other embodiments, the ultrasonic signals utilized can be between 200 kHz to 1 MHz. It can be generated by multilayer piezoelectric thin films, or other types of solid state devices. Since the carrier frequency is at a higher frequency range than 40 kHz, the absorption/attenuation coefficient by air is considerably higher. On the other hand, privacy is enhanced and audible interference to others is reduced.

[0094] A number of embodiments of directional speakers have also been described where the resultant propagation direction of the ultrasonic waves is not orthogonal to the horizontal, but at, for example, 45 degrees. The ultrasonic waves can be at an angle so that the main beam of the waves is approximately pointed at an ear of the user. In another embodiment, the propagation direction of the ultrasonic waves can be approximately orthogonal to the horizontal. Such a speaker does not have to be on a wedge or a step. It can be on a surface that is substantially parallel to the horizontal.

For example, the speaker can be on the shoulder of a user, and the ultrasonic waves propagate upwards, instead of at an angle towards an ear of the user. If the ultrasonic power is sufficient, the waves would have sufficient acoustic power even when the speaker is not pointing exactly at the ear.

[0095] In one embodiment, the ultrasonic beam is considered directed towards the ear as long as any portion of the beam, or the cone of the beam, is immediately proximate to, such as within 7 cm of, the ear. The direction of the beam does not have to be pointed at the ear. It can even be orthogonal to the ear, such as propagating up from one's shoulder, substantially parallel to the face of the person.

[0096] The advantages of the invention are numerous. Different embodiments or implementations may yield different advantages. Different embodiments of the invention can provide one or more of the following advantages: (a) users are provided with non-invasive, hands-free wireless communications capability; (b) the user's ear remains free from any inserted objects and thus is free from the annoying occlusion effects, enabling the user to continue to hear sounds without interference; (c) the system can be inconspicuous due to its relatively small form factor, such as 2" by 3"; (d) the system can be inconspicuous, and would not be seen as a hearing enhancing device because it can be mistaken as a cell phone; (e) the system would not create feedback and resonance due to misalignment in its positioning as in many of the existing hearing aids; (f) the system can have a shape easy to adapt to the profile of a human being, such as in a shape comfortably residing on the shoulder of a user; (g) the system is relatively inexpensive, compared to existing hearing aids - - this can, for example, be due to the lack of requiring an individually-fitted ear mold; and (h) the system is relatively easy to handle, such as to change or to recharge batteries, depending on the embodiment.

[0097] A number of embodiments have been described where a device is attachable to the clothing worn by a user. In one embodiment, attachable to the clothing worn by a user includes wearable by the user. For example, the user can wear a speaker on his neck, like a pendant on a necklace. This also would be considered as attachable to the clothing worn by the user. From another perspective, the necklace

can be considered as the "clothing" worn by the user, and the device is attachable to the necklace.

[0098] The various embodiments, implementations and features of the invention noted above can be combined in various ways or used separately. Those skilled in the art will understand from the description that the invention can be equally applied to or used in other various different settings with respect to various combinations, embodiments, implementations or features provided in the description herein.

[0099] The invention can be implemented in software, hardware or a combination of hardware and software. A number of embodiments of the invention can also be embodied as computer readable code on a computer readable medium. The computer readable medium is any data storage device that can store data, which can thereafter be read by a computer system. Examples of the computer readable medium include read-only memory, random-access memory, CD-ROMs, magnetic tape, optical data storage devices, and carrier waves. The computer readable medium can also be distributed over network-coupled computer systems so that the computer readable code is stored and executed in a distributed fashion.

[00100] Numerous specific details are set forth in order to provide a thorough understanding of the invention. However, it will be understood by those skilled in the art that the invention may be practiced without these specific details. The description and representation herein are the common meanings used by those experienced or skilled in the art to most effectively convey the substance of their work to others skilled in the art. In other instances, well-known methods, procedures, components, and circuitry have not been described in detail to avoid unnecessarily obscuring aspects of the present invention.

[00101] Also, in this specification, reference to "one embodiment" or "an embodiment" means that a particular feature, structure, or characteristic described in connection with the embodiment can be included in at least one embodiment of the invention. The appearances of the phrase "in one embodiment" in various places in the specification are not necessarily all referring to the same embodiment, nor are separate or alternative embodiments mutually exclusive of other embodiments. Further, the

order of blocks in process flowcharts or diagrams representing one or more embodiments of the invention do not inherently indicate any particular order nor imply any limitations in the invention.

[00102] Other embodiments of the invention will be apparent to those skilled in the art from a consideration of this specification or practice of the invention disclosed herein. It is intended that the specification and examples be considered as exemplary only, with the true scope and spirit of the invention being indicated by the following claims.

What is claimed is:

CLAIMS

1. A hearing enhancement system for a user, comprising:

an audio system configured to receive input signals for broadcasting, and configured to up-convert the received input signals into up-converted signals to be wirelessly transmitted;

a wireless receiver configured to wirelessly receive the up-converted signals;

a down-converter configured to down-convert the received up-converted signals into down-converted signals;

a modifier configured to modify the down-converted signals into modified signals based on at least one hearing characteristic of the user to enhance the hearing of the user; and

a speaker configured to generate audio output signals from the modified signals for the user.

2. A hearing enhancement system as recited in claim 1, wherein the up-converted signals are in the WiFi frequency band.

3. A hearing enhancement system as recited in claim 1, wherein the audio system is selected from the list consisting a television, a stereo system, a CD player and a radio.

4. A hearing enhancement system as recited in claim 1, wherein the audio system is a desktop phone.

5. A hearing enhancement system as recited in claim 1, wherein the audio system receives the input signals from a microphone.

6. A hearing enhancement system as recited in claim 1, wherein the down-converted signals are modified such that a portion of the audio output signals has an increased power to enhance the hearing of the user.

7. A hearing enhancement system as recited in claim 6,

wherein the portion with increased power is selected based on frequency, and

wherein a higher frequency portion has increased power.

8. A hearing enhancement system as recited in claim 1,

wherein the at least one hearing characteristic of the user is determined via calibrating the user's hearing,

wherein the power of the audio output signals can be changed as a function of frequency, and

wherein the user can change the power of the audio output signals.

9. A hearing enhancement system as recited in claim 1, wherein the speaker is configured to generate ultrasonic signals, with at least a portion of the ultrasonic signals transformed into the audio output signals in air.

10. A hearing enhancement apparatus for a user, the apparatus being wirelessly coupled to an audio system, which is configured to receive input signals for broadcasting, and configured to up-convert the received input signals into up-converted signals to be wirelessly transmitted, the apparatus comprising:

a wireless receiver configured to wirelessly receive the up-converted signals;

a down-converter configured to down-convert the received up-converted signals into down-converted signals;

a modifier configured to modify the down-converted signals into modified signals based on at least one hearing characteristic of the user to enhance the hearing of the user; and

a speaker configured to generate audio output signals from the modified signals for the user.

11. A hearing enhancement apparatus as recited in claim 10, wherein the down-converted signals are modified such that a portion of the audio output signals has an increased power to enhance the hearing of the user.

12. A hearing enhancement apparatus as recited in claim 11,

wherein the portion with the increased power is selected based on frequency,

wherein a higher frequency portion has increased power,

wherein the at least one hearing characteristic of the user is determined via calibrating the user's hearing,

wherein the power of the audio output signals can be changed as a function of frequency, and

wherein the user can change the power of the audio output signals.

13. A hearing enhancement apparatus as recited in claim 12, wherein the down-converted signals are further modified based on the noise level of the environment of the apparatus.

14. A hearing enhancement apparatus as recited in claim 13, wherein the apparatus is also configured to operate as a phone.

15. A hearing enhancement apparatus as recited in claim 11,

wherein the portion with increased power is selected based on frequency, and

wherein a higher frequency portion has increased power.

16. A hearing enhancement apparatus as recited in claim 10, wherein the up-converted signals are in the WiFi frequency band.

17. A hearing enhancement apparatus as recited in claim 10,

wherein the at least one hearing characteristic of the user is determined via calibrating the user's hearing,

wherein the power of the audio output signals can be changed as a function of frequency, and

wherein the user can change the power of the audio output signals.

18. A hearing enhancement apparatus as recited in claim 10, wherein the speaker is configured to generate ultrasonic signals, with at least a portion of the ultrasonic signals transformed into the audio output signals in air.

19. A hearing enhancement apparatus as recited in claim 10, wherein the down-converted signals are further modified based on the noise level of the environment of the apparatus.

20. A hearing enhancement apparatus as recited in claim 10, wherein the apparatus is also configured to operate as a phone.

21. A hearing enhancement apparatus as recited in claim 10, wherein the at least one hearing characteristic of the user is wirelessly received and stored in the hearing enhancement apparatus.

22. A hearing enhancement apparatus as recited in claim 10, wherein the at least one hearing characteristic of the user is retrieved from a portable media storage device while being physically in contact with the apparatus.

DIRECTIONAL HEARING ENHANCEMENT SYSTEMS

ABSTRACT OF THE DISCLOSURE

A hearing enhancement system that enhances a user's hearing based on a directional speaker is disclosed. In one embodiment, the system can include an interface unit that has a directional speaker and a microphone. The microphone captures input audio signals that are transformed into ultrasonic signals. The speaker transmits the ultrasonic signals, which are transformed into output audio signals by interaction with air. At least a portion of the output audio signals are modified to enhance the hearing of the user. Based on the system, the user's ear remains free from any inserted objects and thus is free from annoying occlusion effects. Compared to existing hearing aids, the system is relatively inexpensive. In another embodiment, the system can also be used as a phone. In yet another embodiment, the system can also access audio signals from other portable or non-portable instruments, wired or wirelessly, such as from home entertainment units, phones, microphones at a conference or speakers at a movie theater.

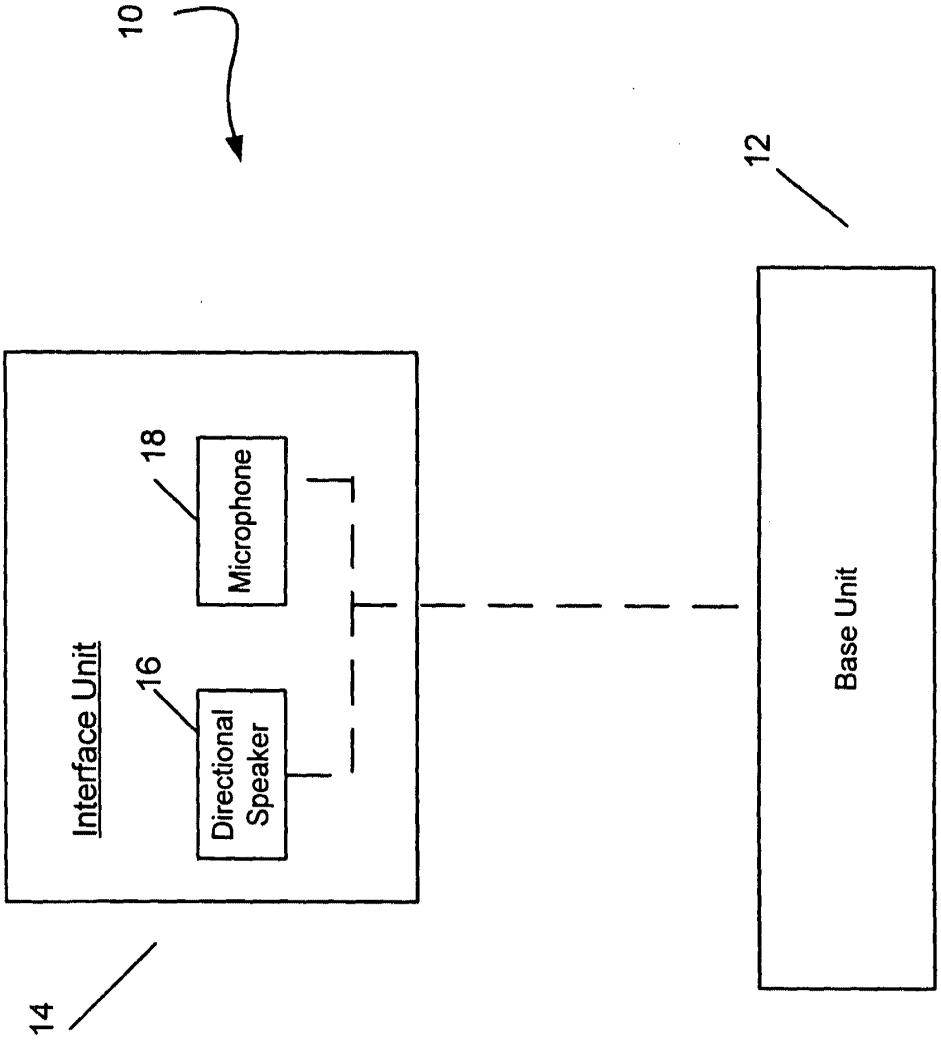

10
12
Base Unit
Interface Unit
18
Microphone
16
Directional Speaker
14

FIG. 1

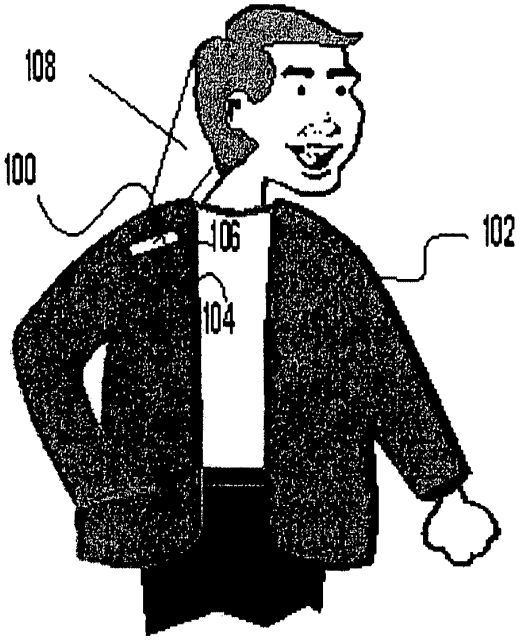


FIG. 2

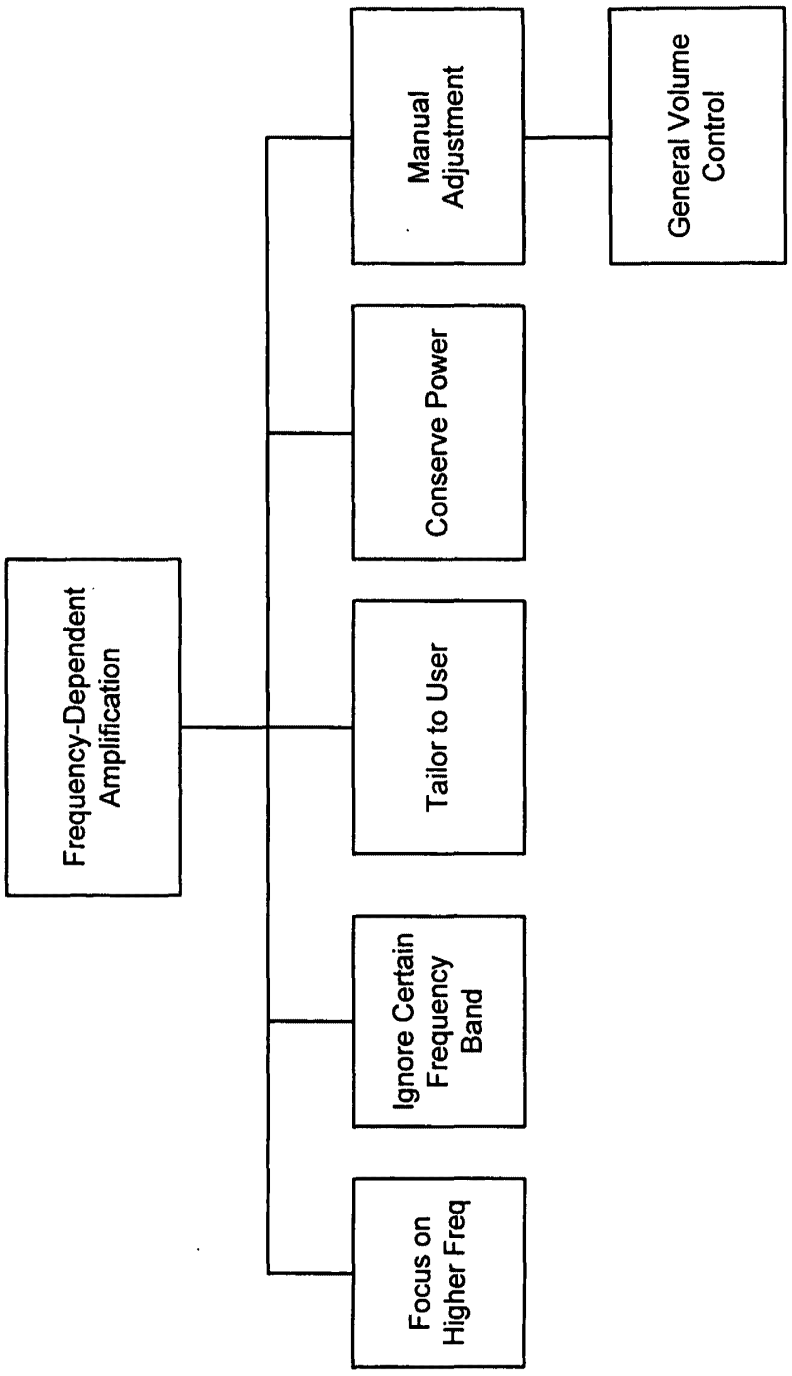

Frequency-Dependent Amplification
Focus on Higher Freq
Ignore Certain Frequency Band
Tailor to User
Conserve Power
Manual Adjustment
General Volume Control

FIG. 3

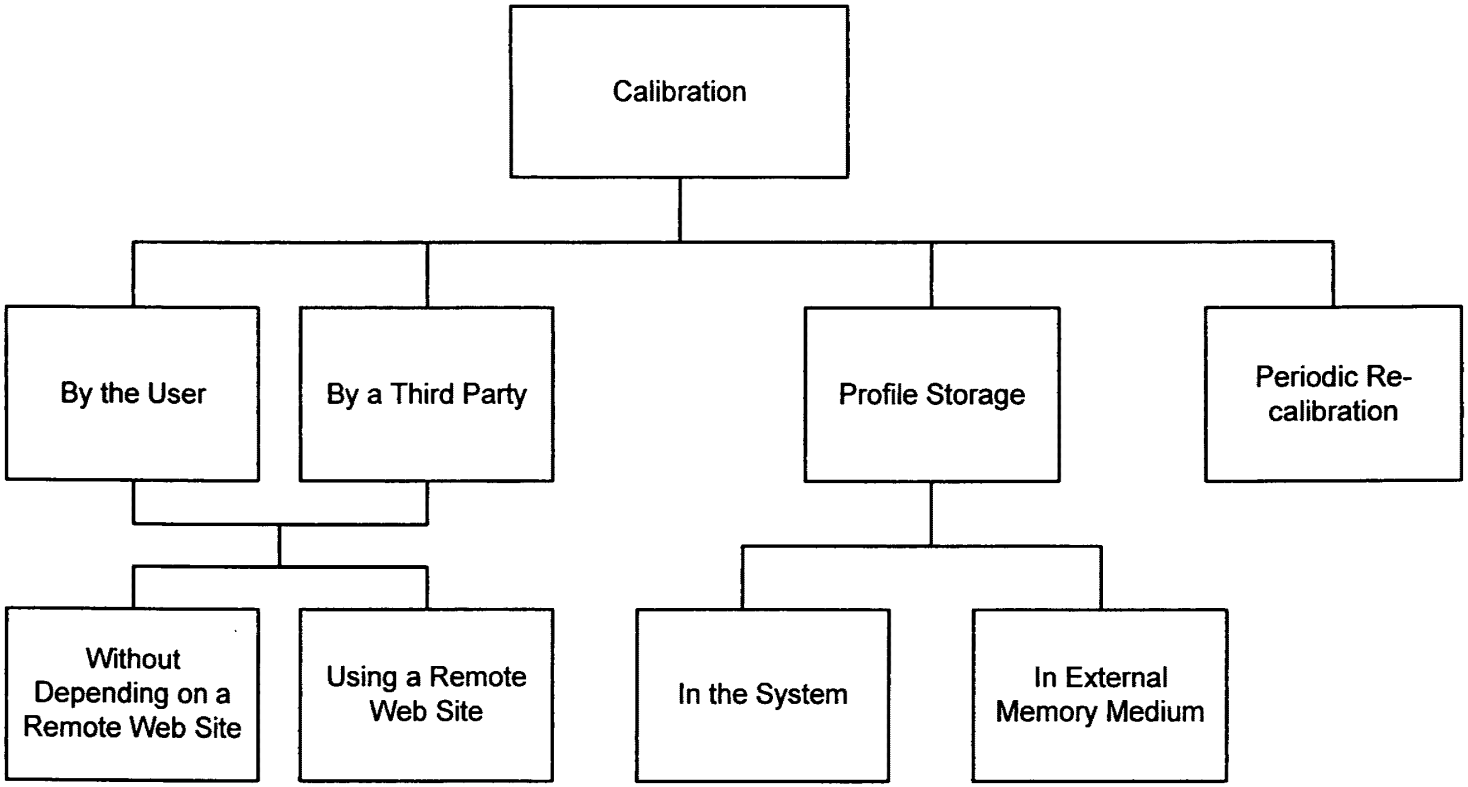


FIG. 4

Apple Inc. Exhibit 1002 Page 36

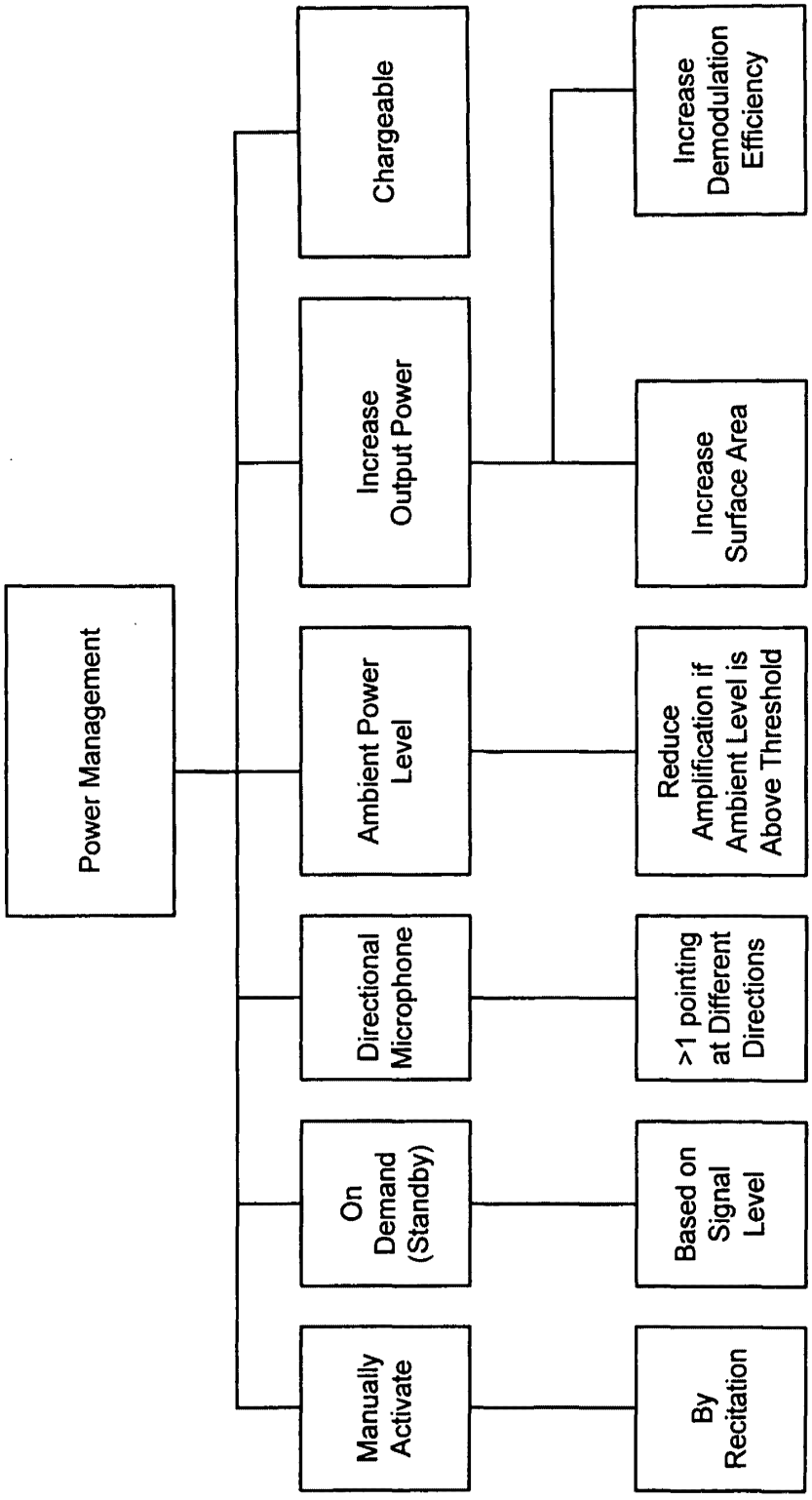

Power Management
Manually Activate
On Demand (Standby)
Directional Microphone
Ambient Power Level
Increase Output Power
Chargeable
By Recitation
Based on Signal Level
>1 pointing at Different Directions
Reduce Amplification if Ambient Level is Above Threshold
Increase Surface Area
Increase Demodulation Efficiency

FIG. 5A

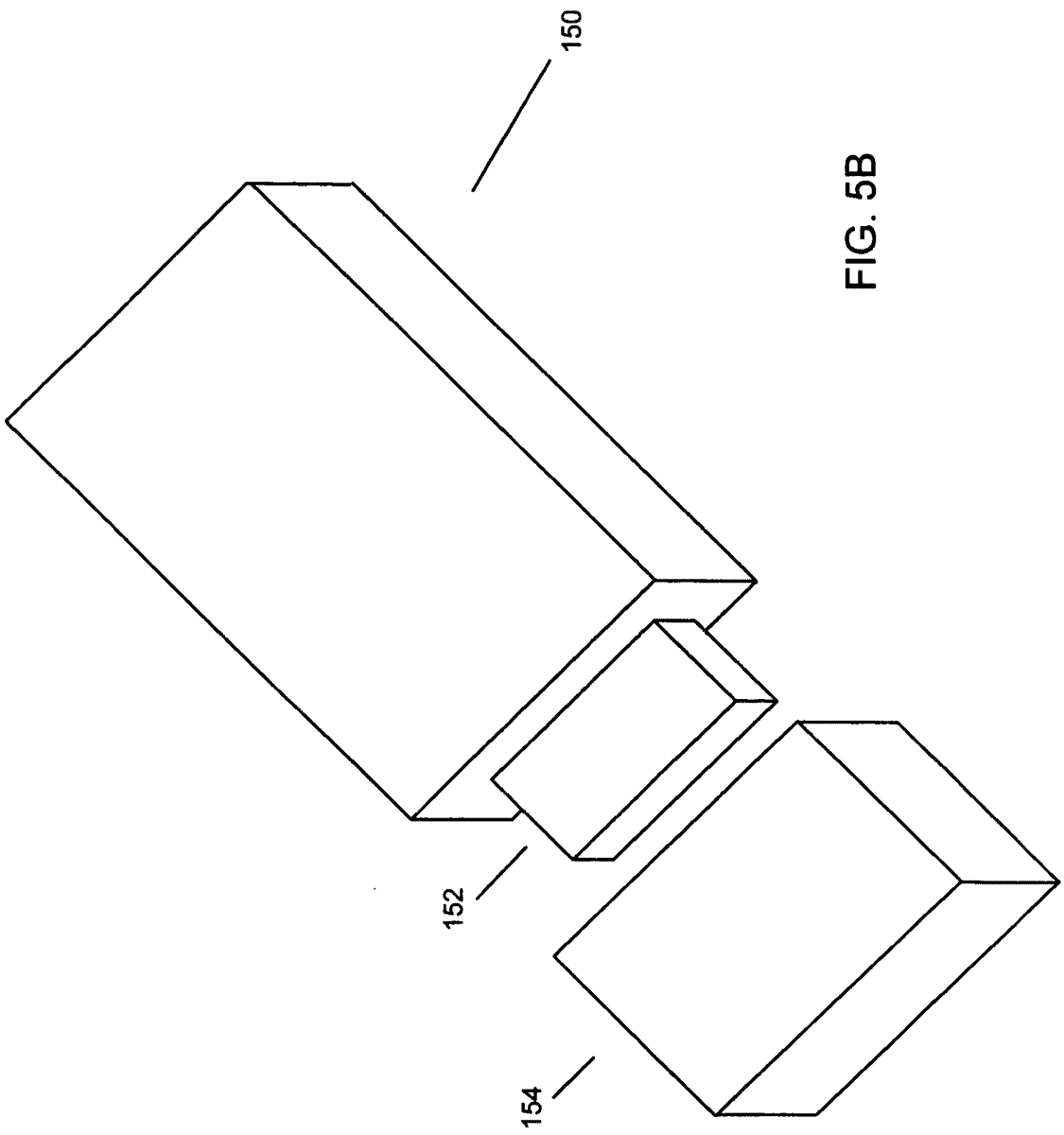


FIG. 5B

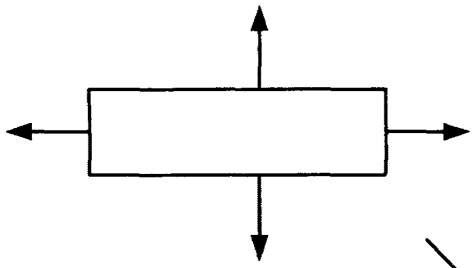


FIG. 6A

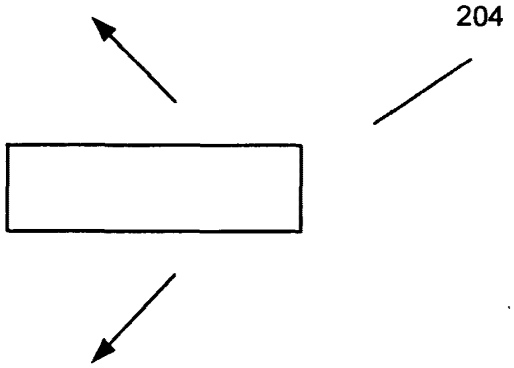


FIG. 6C

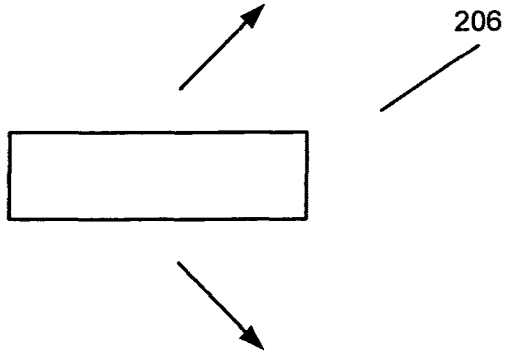


FIG. 6B

Apple Inc. Exhibit 1002 Page 39

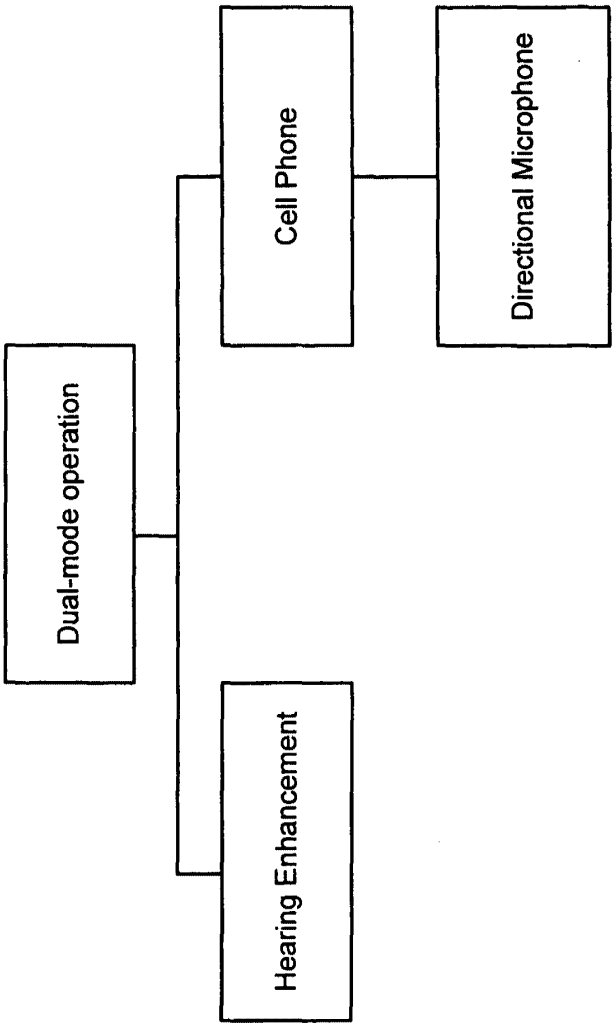

Dual-mode operation
Cell Phone
Directional Microphone
Hearing Enhancement

FIG. 7

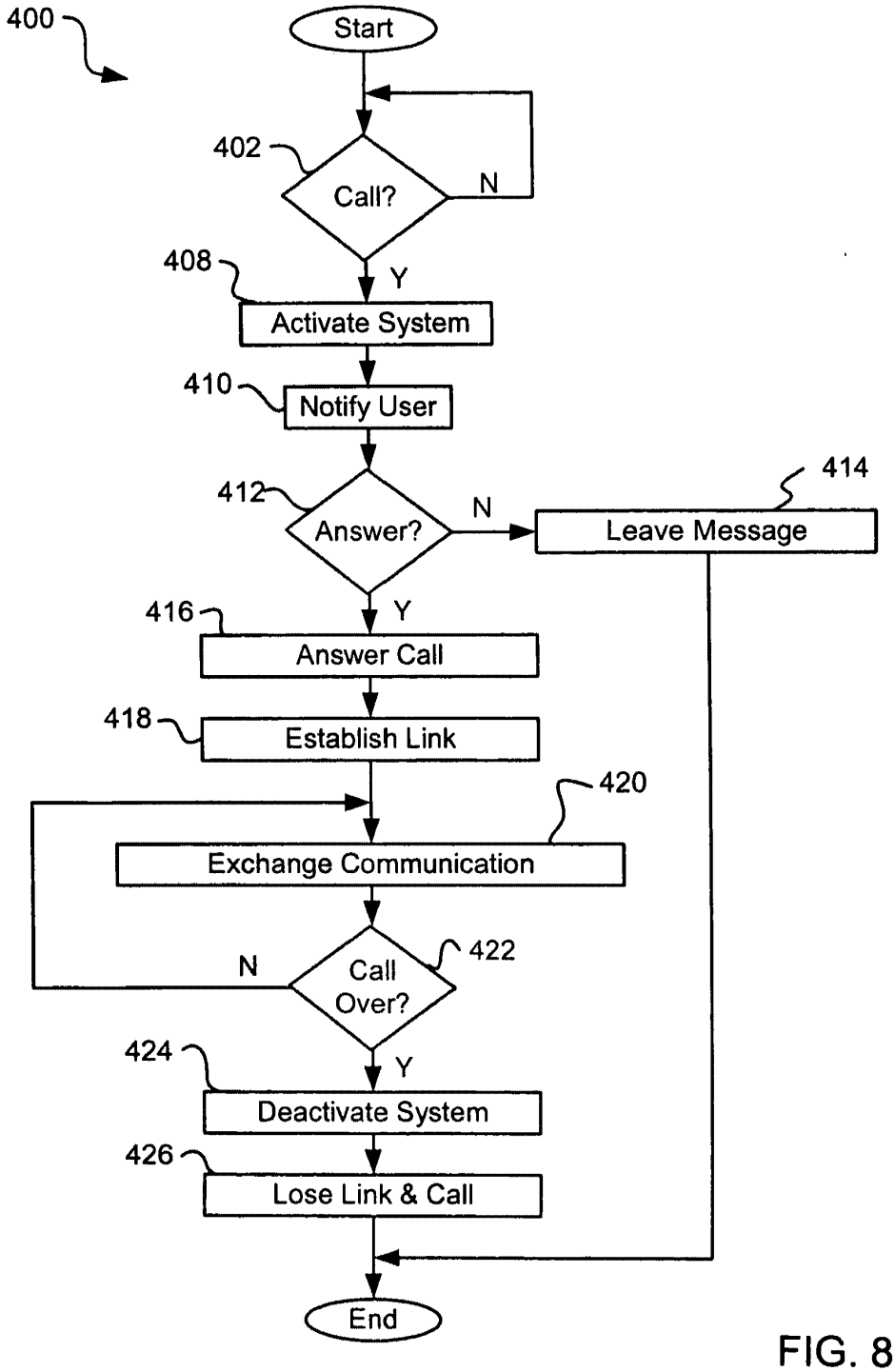

400
Start
402
Call?
N
Y
408
Activate System
410
Notify User
412
Answer?
N
414
Leave Message
Y
416
Answer Call
418
Establish Link
420
Exchange Communication
N
Call Over?
422
Y
424
Deactivate System
426
Lose Link & Call
End

FIG. 8

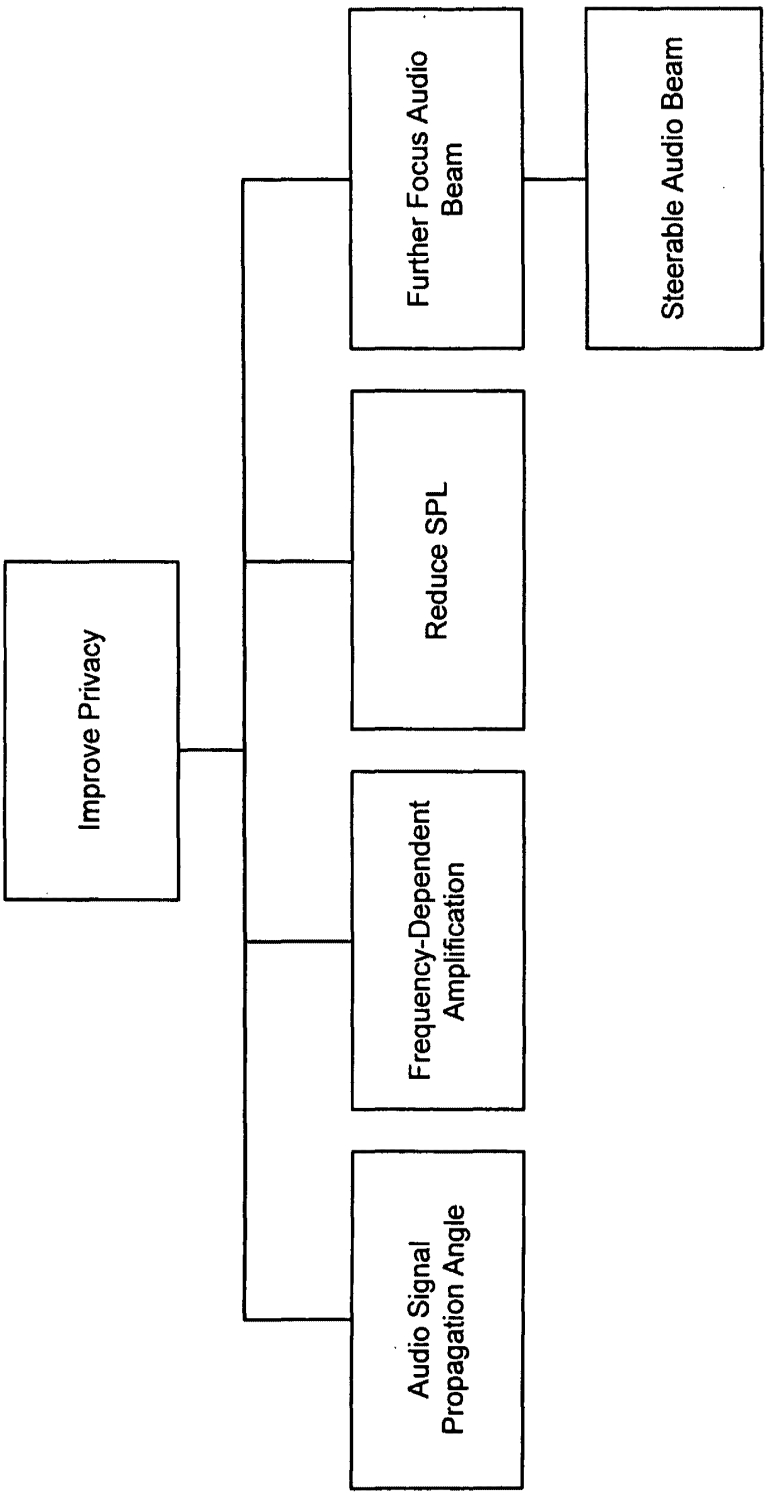

Improve Privacy
Reduce SPL
Further Focus Audio Beam
Steerable Audio Beam
Frequency-Dependent Amplification
Audio Signal Propagation Angle

FIG. 9

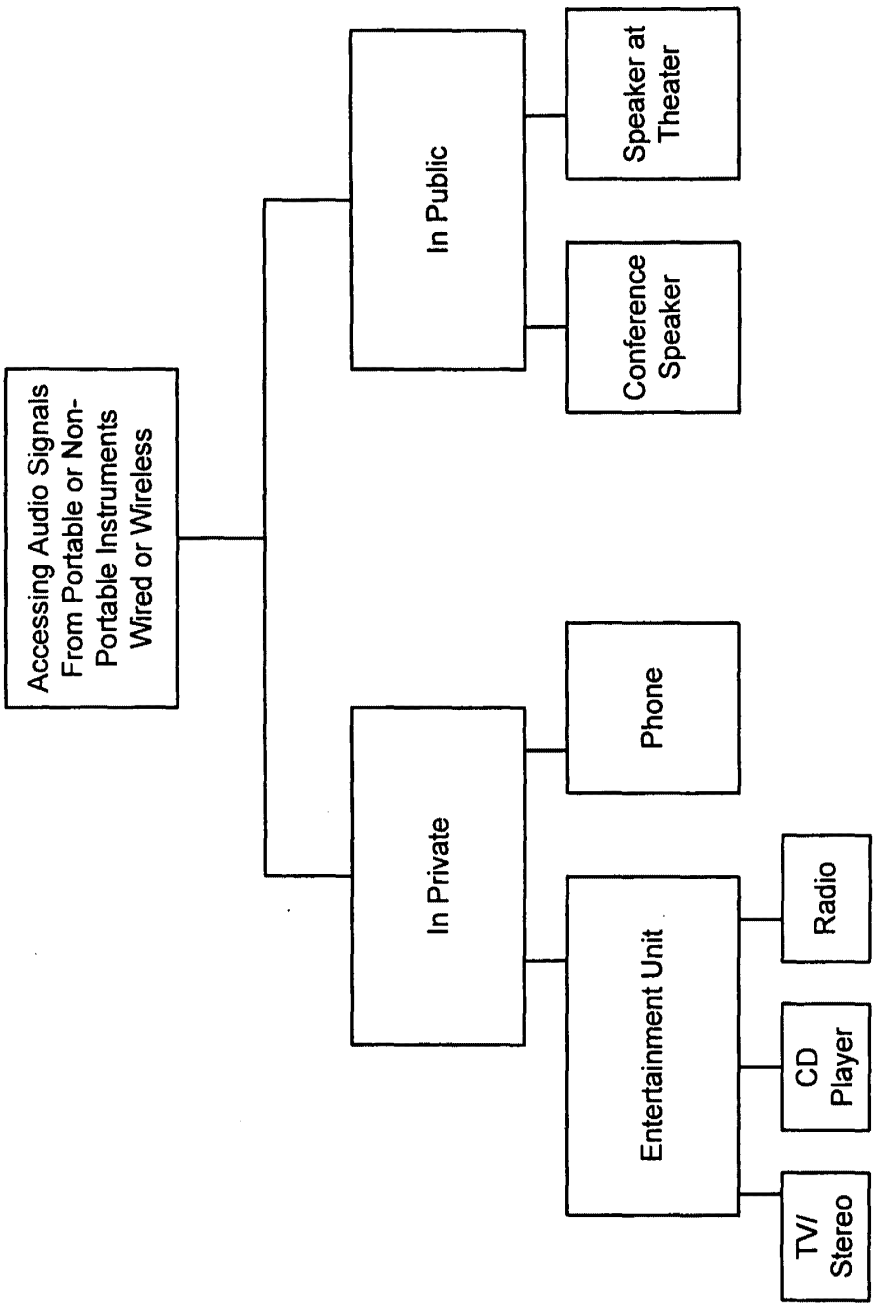

Accessing Audio Signals From Portable or Non-Portable Instruments Wired or Wireless
In Public
Speaker at Theater
Conference Speaker
In Private
Phone
Entertainment Unit
Radio
CD Player
TV/ Stereo

FIG. 10

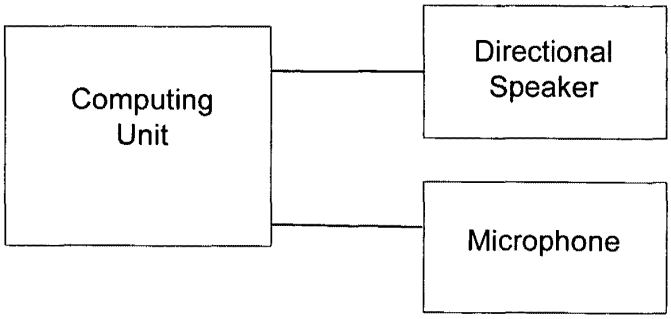


Fig. 11

DECLARATION FOR ORIGINAL U.S. PATENT APPLICATION

Attorney's Docket No. **IPVBP002**

As a below-named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: "DIRECTIONAL HEARING ENHANCEMENT SYSTEMS", the specification of which,

(check one)

1. ☒ is attached hereto.

2. ☐ was filed on _____ as U.S. Application No. _____ and was amended on _____.

3. ☐ was filed on _____ as International PCT Application Serial No. _____ and was amended on _____.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, CFR § 1.56.

I hereby claim foreign priority benefits under Title 35, United States code, § 119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have identified below, by checking the box, any foreign application for patent or inventoris certificate, or PCT International application having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)			Priority Benefits Claimed?
None			Yes ___ No ___
(Application No.)	(Country)	(Filing Date)	

I hereby claim the benefit under 35 U.S.C. §119(e) of any United States provisional application(s) listed below:

Provisional U.S. Applications

60/462,570	April 15, 2003
(Application No.)	(Filing Date)
60/469,221	May 12, 2003
(Application No.)	(Filing Date)
60/493,441	August 8, 2003
(Application No.)	(Filing Date)

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s), or § 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose information which is material to patentability as defined in

Title 37, Code of Federal Regulations, § 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

Prior U.S. Application(s)

None		
(Application No.)	(Filing Date)	(Status - patented, pending, abandoned)

Send Correspondence To: **Customer Number: 34071**

Direct Telephone Calls To: **C. Douglass Thomas at telephone number (408) 446-3333**

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Typewritten Full Name of First Inventor:	Kwok Wai CHEUNG	Citizenship:	Hong Kong SAR, China
Inventor's signature:		Date of Signature:	APR. 13. 04
Residence: (City)	Hong Kong, SAR	(State/Country)	China
Post Office Address:	Flat 3A, Block 10, 23 Shan Tong Road, Tai Po, Hong Kong SAR, China		
Typewritten Full Name of First Inventor:	Peter P. Tong	Citizenship:	USA
Inventor's signature:	Peter Tong	Date of Signature:	April 13, 2004
Residence: (City)	Mountain View	(State/Country)	CA/US
Post Office Address:	1807 Limetree Lane, Mountain View, CA, 94040		
Typewritten Full Name of Second Inventor:	C. Douglass Thomas	Citizenship:	USA
Inventor's signature:	C. Douglass Thomas	Date of Signature:	4/13/2004
Residence: (City)	Campbell	(State/Country)	CA/US
Post Office Address:	1193 Capri Drive, Campbell, CA, 95008		

Apple Inc. Exhibit 1002 Page 46

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT

In re application of: CHEUNG et al.	Attorney Docket No.: IPVBP002C1
Application No.: To be assigned	Examiner: To be assigned
Filed: Herewith	Group: To be assigned

Title: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS

POWER OF ATTORNEY BY ASSIGNEE AND 37 CFR §3.73 STATEMENT

Commissioner for Patents
Washington, D. C. 20231

Sir:

IpVenture, Inc.. is the assignee of the above-referenced patent application by virtue of an assignment document. The assignment document is/was recorded:

☐ at Reel , Frame(s)

☐ on

☒ submitted concurrently herewith

The assignee represents, pursuant to 37 C.F.R. §3.73(b), that the undersigned is a representative authorized and empowered to sign on behalf of the assignee.

Pursuant to 37 C.F.R. §§1.36 and 3.71, the assignee hereby revokes all powers of attorney previously given and hereby appoints all practitioners who are associated with the **Customer Number 34071** as principal attorneys to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

Please send all correspondence for this application as follows:

Customer Number 34071
IpVenture, Inc.
5150 El. Camino Real
Suite A-22
Los Altos, CA 94022

Assignee of Interest: **IpVenture, Inc.**
5150 El Camino Real
Building A, Suite 22
Los Altos, CA 94022

Date 6/6/2008

Name: C. Douglass Thomas
Title: Chairman
IpVenture, Inc.

Application Data Sheet

Application Information

Application Type::	Regular
Subject Matter::	Utility
Title::	DIRECTIONAL HEARING ENHANCEMENT SYSTEMS
Attorney Docket Number::	IPVBP002C1
Request for Non-Publication?::	No
Suggested Drawing Figure::	10
Total Drawing Sheets::	12
Small Entity::	yes

Applicant Information

Applicant Authority type::	Inventor
Primary Citizenship Country::	Hong Kong SAR, China
Status::	Full Capacity
Given Name::	Kwok
Middle Name::	Wai
Family Name::	Cheung
City of Residence::	Hong Kong
State or Province of Residence::	Tai Po
Country of Residence::	Hong Kong SAR, China
Street of mailing address::	Flat 3A, Block 10, 23 Shan Tong Road, Tai Po
Country of mailing address::	Hong Kong SAR, China
Postal or Zip Code of mailing address::	none

Applicant Information

Applicant Authority type::	Inventor
Primary Citizenship Country::	US
Status::	Full Capacity
Given Name::	Peter
Middle Name::	P.
Family Name::	Tong
City of Residence::	Mountain View
State or Province of Residence::	CA
Country of Residence::	US
Street of mailing address::	1807 Limetree Lane
Country of mailing address::	US
Postal or Zip Code of mailing address::	94040

Applicant Information

Applicant Authority type::	Inventor
Primary Citizenship Country::	US
Status::	Full Capacity
Given Name::	C.
Middle Name::	Douglass
Family Name::	Thomas
City of Residence::	Campbell
State or Province of Residence::	CA
Country of Residence::	US
Street of mailing address::	1193 Capri Drive
Country of mailing address::	US
Postal or Zip Code of mailing address::	95008

Correspondence Information

Correspondence Customer Number::	34071
Phone number::	650-903-9200
Fax number::	6550-903-9800
E-Mail address::	doug@ipventure.com

Representative Information

Representative Customer Number::	34071

Domestic Priority Information

Application::	Continuity Type::	Parent Application::	Parent Filing Date::
This application is	a continuation of	10/826,527	April 15, 2004
Which	claims priority to	60/462,570	April 15, 2003
and	claims priority to	60/469,221	May 12, 2003
and	claims priority to	60/493,441	August 8, 2003

DocCode - SCORE

SCORE Placeholder Sheet for IFW Content

Application Number: **12157092** Document Date: **06/06/2008**

The presence of this form in the IFW record indicates that the following document type was received in paper and is scanned and stored in the SCORE database.

- Drawings

Images of the original documents are scanned in gray scale or color and stored in SCORE. Bi-tonal images are also stored in IFW. Defects visible in both IFW and SCORE are indicative of defects in the original paper documents.

To access the documents in the SCORE database, refer to instructions developed by SIRA.

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- Examiners may access SCORE content via the eDAN interface.
- Other USPTO employees can bookmark the current SCORE URL (http://es/ScoreAccessWeb/).
- External customers may access SCORE content via the Public and Private PAIR interfaces.

Form Revision Date: December 8, 2006

PTO/SB/06 (10-07)
Approved for use through 06/30/2010. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 12157092

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	$155		N/A	$310
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A	$255		N/A	$510
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	$105		N/A	$210
TOTAL CLAIMS (37 CFR 1.16(i))	22 minus 20 =	* 2	X $25 =	50	OR	X $50 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2 minus 3 =	* 0	X $105 =			X $210 =	
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $260 ($130 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).		$130			$260	
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))			$185			$370	
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	565		TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT A

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $25 =		OR	X $50 =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $105 =		OR	X $210 =	
Application Size Fee (37 CFR 1.16(s))									
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					$185		OR	$370	
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

AMENDMENT B

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)	OR	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $25 =		OR	X $50 =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $105 =		OR	X $210 =	
Application Size Fee (37 CFR 1.16(s))									
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					$185		OR	$370	
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest 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.

PATENT APPLICATION SERIAL NO._____

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

06/10/2008 HLE333 00000030 12157092

01 FC:2011	155.00	OP
02 FC:2111	255.00	OP
03 FC:2311	105.00	OP
04 FC:2202	50.00	OP

PTO-1556
(5/87)

*U.S. Government Printing Office: 2002- 489-267/69033

U.S. PTO
12/157092
06/06/2008

PTO/SB/05 (07-06)
Approved for use through 01/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office. U.S. DEPARTMENT OF COMMERCE
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060608 16179 U.S. PTO

UTILITY PATENT APPLICATION TRANSMITTAL

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

Attorney Docket No.	IPVBP002C1
First Inventor	CHEUNG et al.
Title	DIRECTIONAL HEARING ENHANCEMENT
Express Mail Label No.	EB 190 818 164 US

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. ☑ **Fee Transmittal Form** (e.g., PTO/SB/17)
   (Submit an original and a duplicate for fee processing)
2. ☑ **Applicant claims small entity status.** See 37 CFR 1.27.
3. ☑ **Specification** [*Total Pages* 30]
   Both the claims and abstract must start on a new page
   (For information on the preferred arrangement, see MPEP 608.01(a))
4. ☑ **Drawing(s)** (*35 U.S.C. 113*) [*Total Sheets* 12]
5. **Oath or Declaration** [*Total Sheets* 2]
   a. ☐ Newly executed (original or copy)
   b. ☑ A copy from a prior application (37 CFR 1.63(d))
   (for continuation/divisional with Box 18 completed)
   i. ☐ DELETION OF INVENTOR(S)
   Signed statement attached deleting inventor(s) name in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
6. ☑ **Application Data Sheet.** See 37 CFR 1.76
7. ☐ **CD-ROM or CD-R** in duplicate, large table or Computer Program *(Appendix)*
   ☐ Landscape Table on CD
8. **Nucleotide and/or Amino Acid Sequence Submission**
   (if applicable, items a. – c. are required)
   a. ☐ Computer Readable Form (CRF)
   b. Specification Sequence Listing on:
      i. ☐ CD-ROM or CD-R (2 copies); or
      ii. ☐ Paper
   c. ☐ Statements verifying identity of above copies

ADDRESS TO: **Commissioner for Patents**
P.O. Box 1450
Alexandria VA 22313-1450

ACCOMPANYING APPLICATION PARTS

9. ☐ **Assignment Papers** (cover sheet & document(s))
   Name of Assignee_____
10. ☑ **37 CFR 3.73(b) Statement** *(when there is an assignee)* ☑ **Power of Attorney**
11. ☐ **English Translation Document** *(if applicable)*
12. ☐ **Information Disclosure Statement** (PTO/SB/08 or PTO-1449)
    ☐ Copies of citations attached
13. ☐ **Preliminary Amendment**
14. ☑ **Return Receipt Postcard** (MPEP 503)
    (Should be specifically itemized)
15. ☐ **Certified Copy of Priority Document(s)**
    (if foreign priority is claimed)
16. ☐ **Nonpublication Request** under 35 U.S.C. 122(b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent.
17. ☐ Other:_____

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

☑ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No.: 10/826,527

Prior application information: *Examiner* PENDLETON, DIONNE *Art Unit:* 2627

19. CORRESPONDENCE ADDRESS

☑ The address associated with Customer Number: 34071 ***OR*** ☐ Correspondence address below

Name					
Address					
City		State		Zip Code	
Country		Telephone		Email	

Signature	C. Douglass Thomas	Date	June 6, 2008
Name (Print/Type)	C. Douglass Thomas	Registration No. (Attorney/Agent)	32,947

This collection of information is required by 37 CFR 1.53(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

060608

16179

PTO/SB/17 (10-07)
Approved for use through 06/30/2010. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Effective on 12/08/2004.
Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL For FY 2008

SPTO

☑ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 565.00

Complete if Known	
Application Number	Unassigned
Filing Date	herewith
First Named Inventor	CHEUNG et al.
Examiner Name	Unassigned
Art Unit	Unassigned
Attorney Docket No.	IPVBP002C1

METHOD OF PAYMENT (check all that apply)

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

☑ Deposit Account Deposit Account Number: 50-3874 Deposit Account Name: _____

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

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

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

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

FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

Application Type	FILING FEES Fee ($)	FILING FEES Small Entity Fee ($)	SEARCH FEES Fee ($)	SEARCH FEES Small Entity Fee ($)	EXAMINATION FEES Fee ($)	EXAMINATION FEES Small Entity Fee ($)	Fees Paid ($)
Utility	310	155	510	255	210	105	515.00
Design	210	105	100	50	130	65	
Plant	210	105	310	155	160	80	
Reissue	310	155	510	255	620	310	
Provisional	210	105	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee ($)	Small Entity Fee ($)
Each claim over 20 (including Reissues)	50	25
Each independent claim over 3 (including Reissues)	210	105
Multiple dependent claims	370	185

Total Claims	Extra Claims	Fee ($)	Fee Paid ($)
22 - 20 or HP =	2	x 25	= $50

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

Indep. Claims	Extra Claims	Fee ($)	Fee Paid ($)
3 - 3 or HP =	0	x 0	= 0

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 $260 ($130 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee ($)	Fee Paid ($)
42 - 100 =		/ 50 = (round up to a whole number)	x	=

4. OTHER FEE(S)

	Fees Paid ($)
Non-English Specification, $130 fee (no small entity discount)	
Other (e.g., late filing surcharge):	

SUBMITTED BY

Signature	C. Thomas	Registration No. (Attorney/Agent) 32,947	Telephone 650-903-9200
Name (Print/Type)	C. Douglass Thomas		Date June 6, 2008

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
12/157,092	06/06/2008	Kwok Wai Cheung	IPVBP002C1

CONFIRMATION NO. 6143

34071
IPVENTURE, INC.
5150 EL CAMINO REAL
SUITE A-22
LOS ALTOS, CA 94022

IMPROPER CPOA LETTER



Date Mailed: 06/24/2008

NOTICE REGARDING POWER OF ATTORNEY

This is in response to the Power of Attorney filed 06/06/2008. 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 Certificate required by 37 CFR 3.73(b) has not been received.

/ncarey/

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

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
12/157,092	06/06/2008	Kwok Wai Cheung	IPVBP002C1

CONFIRMATION NO. 6143

34071
IPVENTURE, INC.
5150 EL CAMINO REAL
SUITE A-22
LOS ALTOS, CA 94022

FORMALITIES LETTER



Date Mailed: 06/24/2008

NOTICE TO FILE CORRECTED APPLICATION PAPERS

Filing Date Granted

An application number and filing date have been accorded to this application. The application is informal since it does not comply with the regulations for the reason(s) indicated below. Applicant is given TWO MONTHS from the date of this Notice within which to correct the informalities indicated below. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

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

- Replacement drawings in compliance with 37 CFR 1.84 and 37 CFR 1.121(d) are required. The drawings submitted are not acceptable because:
  - The drawings submitted to the Office are not electronically reproducible because portions of figures 2 are missing and/or blurry.

Applicant is cautioned that correction of the above items may cause the specification and drawings page count to exceed 100 pages. If the specification and drawings exceed 100 pages, applicant will need to submit the required application size fee.

Replies should be mailed to:

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

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/hnguyen/

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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
12/157,092	06/06/2008	2627	565	IPVBP002C1	22	2

CONFIRMATION NO. 6143

34071
IPVENTURE, INC.
5150 EL CAMINO REAL
SUITE A-22
LOS ALTOS, CA 94022

FILING RECEIPT



Date Mailed: 06/24/2008

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

Applicant(s)

Kwok Wai Cheung, Hong Kong, CHINA;
Peter P. Tong, Mountain View, CA;
C. Douglass Thomas, Campbell, CA;

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 10/826,527 04/15/2004 PAT 7,388,962
which claims benefit of 60/462,570 04/15/2003
and claims benefit of 60/469,221 05/12/2003
and claims benefit of 60/493,441 08/08/2003

Foreign Applications

If Required, Foreign Filing License Granted: 06/20/2008

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 12/157,092**

Projected Publication Date: To Be Determined - pending completion of Corrected Papers

Non-Publication Request: No

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

Title

Directional hearing enhancement systems

Preliminary Class

381

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

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

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

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

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

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

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Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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FAX

TO: Commissioner for Patents, Mail Stop:	**FROM:** C. Douglass Thomas Ph: 650-903-9200, Fax: 650-903-9800
COMPANY: United States Patent Office	**DATE:** 7/18/2008
FAX NUMBER: 571-273-8300	**NO. OF PAGES (INCLUDING COVER):** 3
PHONE NUMBER:	**SENDER'S REFERENCE NUMBER:** IPVBP002C1
RE:	**RECIPIENT'S REFERENCE NUMBER:** 12/157,092

NOTES/COMMENTS:

Transmitted herewith are the following documents for entry into the above-noted file:

Power of Attorney by Assignee and 37 CFR §3.73 Statement 2 pages

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: CHEUNG et al.	Attorney Docket No.: IPVBP002C1
Application No.: 12/157,092	Examiner: To be assigned
Filed: June 6, 2008	Group: 2627
Title: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS	

POWER OF ATTORNEY BY ASSIGNEE AND 37 CFR §3.73 STATEMENT

Commissioner for Patents
Washington, D. C. 20231

Sir:

IpVenture, Inc.. is the assignee of the above-referenced patent application by virtue of an assignment document. The assignment document is/was recorded:

- ☒ at Reel 015295, Frame(s) 0337
- ☐ on April 15, 2004
- ☐ submitted concurrently herewith

The assignee represents, pursuant to 37 C.F.R. §3.73(b), that the undersigned is a representative authorized and empowered to sign on behalf of the assignee.

Pursuant to 37 C.F.R. §§1.36 and 3.71, the assignee hereby revokes all powers of attorney previously given and hereby appoints all practitioners who are associated with the **Customer Number 34071** as principal attorneys to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

PAGE 2/3 * RCVD AT 7/18/2008 9:04:26 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/22 * DNIS:2738300 * CSID:650 903 9800 * DURATION (mm-ss):00-44

Please send all correspondence for this application as follows:

Customer Number 34071
IpVenture, Inc.
5150 El. Camino Real
Suite A-22
Los Altos, CA 94022

Assignee of Interest: **IpVenture, Inc.**
5150 El Camino Real
Building A, Suite 22
Los Altos, CA 94022

Date 7/18/2008

C. Douglass Thomas

Name: C. Douglass Thomas
Title: Chairman
IpVenture, Inc.

PAGE 3/3 * RCVD AT 7/18/2008 9:04:26 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/22 * DNIS:2738300 * CSID:650 903 9800 * DURATION (mm-ss):00-44

JUL 21 2008 PATENT & TRADEMARK OFFICE

IFW

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: CHEUNG et al.

Attorney Docket No.: IPVBP002C1

Application No.: 12/157,092

Examiner: unassigned

Filed: June 6, 2008

Group: 2627

Title: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the U.S. Postal Service with sufficient postage as first-class mail on July 18, 2008 in an envelope addressed to the Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450.

Signed: Pat Tate

Pat Tate

RESPONSE TO NOTICE TO FILE CORRECTED APPLICATION PAPERS

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

Sir:

In response to the Notice to File Missing Corrected Application Papers--Filing Date Granted mailed June 24, 2008, enclosed is one sheet of Replacement drawing (re: Fig. 2) in compliance with 37 CFR 1.84 and 37 CFR 1.121(d).

If it is determined that any fees are due, the Commissioner is hereby authorized to charge such fees to Deposit Account 50-3874 (Order No. IPVBP002C1).

Respectfully submitted,

C. Douglass Thomas
Registration No. 32,947

5150 El Camino Real,
Building A, Ste. 22
Los Altos, CA 94022

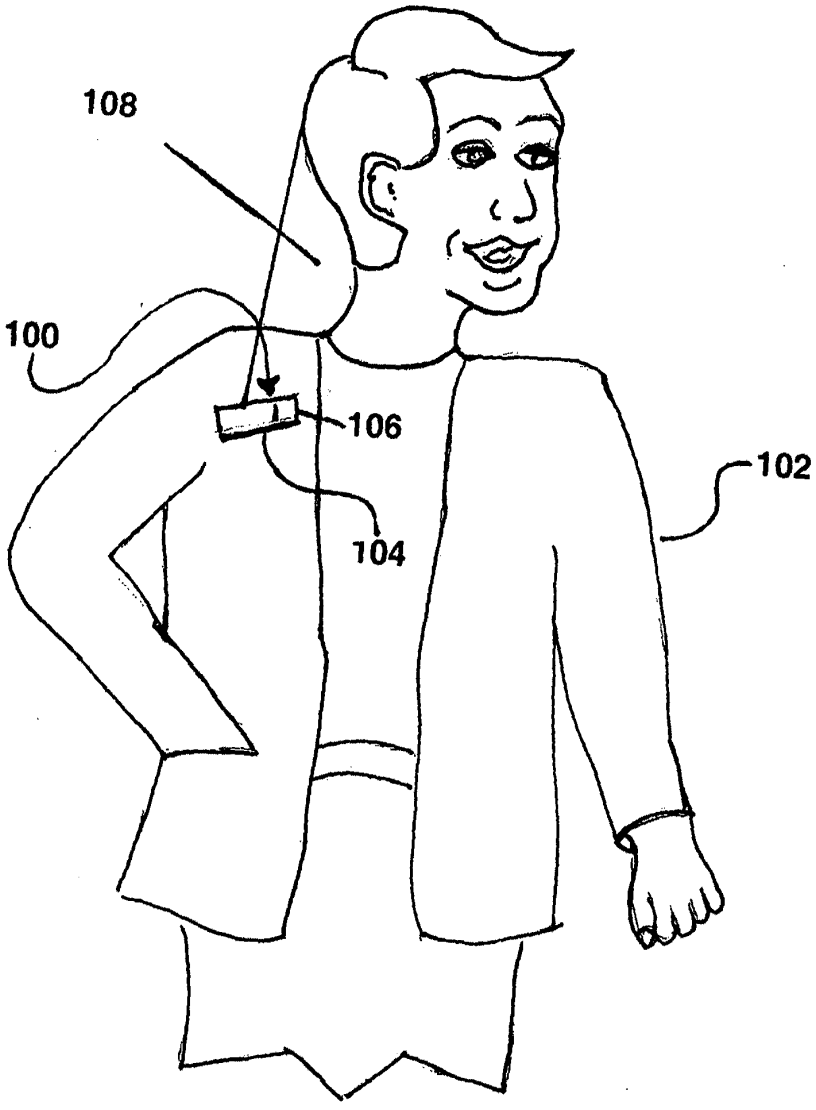


FIG 2

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JUL 22 2008

FAX

TO: Commissioner for Patents, Mail Stop:	**FROM:** C. Douglass Thomas Ph: 650-903-9200, Fax: 650-903-9800
COMPANY: United States Patent Office	**DATE:** 7/22/2008
FAX NUMBER: 571-273-8300	**NO. OF PAGES (INCLUDING COVER):** 10
PHONE NUMBER:	**SENDER'S REFERENCE NUMBER:** IPVBP002C1
RE:	**RECIPIENT'S REFERENCE NUMBER:** 12/157,092

NOTES/COMMENTS:

Transmitted herewith are the following documents for entry into the above-noted file:

Information Disclosure Statement	2 pages
Form 1449	7 pages

THE INFORMATION CONTAINED IN THIS FACSIMILE MESSAGE IS PRIVILEGED AND CONFIDENTIAL AND IS INTENDED ONLY FOR THE USE OF THE INDIVIDUAL NAMED ABOVE AND OTHERS WHO HAVE BEEN SPECIFICALLY AUTHORIZED TO RECEIVE SUCH. IF THE RECIPIENT IS NOT THE INTENDED RECIPIENT, YOU ARE HEREBY NOTIFIED THAT ANY DISSEMINATION, DISTRIBUTION OR COPYING OF THIS COMMUNICATION IS STRICTLY PROHIBITED. IF YOU HAVE RECEIVED THIS COMMUNICATION IN ERROR, OR IF ANY PROBLEMS OCCUR WITH TRANSMISSION, PLEASE IMMEDIATELY NOTIFY US BY TELEPHONE AT (650)903-9200. THANK YOU.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: CHEUNG et al.	Attorney Docket No.: IPVBP002C1
Application No.: 12/157,092	Examiner: Unassigned
Filed: June 6, 2008	Group: 2627

Title: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS

CERTIFICATE OF FACSIMILE

I hereby certify that this correspondence is being transmitted by facsimile to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on July 22, 2008.

Signed: _____ Printed Name: Patricia Tate

INFORMATION DISCLOSURE STATEMENT 37 CFR §§1.56 AND 1.97(b)

The references listed in the attached PTO Form 1449 may be material to examination of the above-identified patent application. Applicants submit the list of these references in compliance with their duty of disclosure pursuant to 37 CFR §§1.56 and 1.97. The Examiner is requested to make these references of official record in this application. The above-identified application is a continuation of prior application U.S. Patent Application No. 10/826,527. This prior application is being relied upon for an earlier filing date under 35 U.S.C. § 120. Because the listed references were either cited by the PTO, or submitted to the PTO in the prior application, under 37 CFR § 1.98(d) Applicants submit that copies need not be provided.

This Information Disclosure Statement is not to be construed as a representation that a search has been made, that additional information material to the examination of this application does not exist, or that these references indeed constitute prior art.

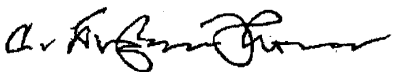
This Information Disclosure Statement is: (i) filed within three (3) months of the filing date of the above-referenced application, (ii) believed to be filed before the mailing date of a first Office Action on the merits, or (iii) believed to be

PAGE 2/10 * RCVD AT 7/22/2008 5:40:34 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/44 * DNIS:2738300 * CSID:650 903 9800 * DURATION (mm-ss):02-32

filed before the mailing of a first Office Action after the filing of a Request for Continued Examination under §1.114.

Accordingly, it is believed that no fees are due in connection with the filing of this Information Disclosure Statement. However, if it is determined that any fees are due, the Commissioner is hereby authorized to charge such fees to Deposit Account 50-3874 (Order No. IPVBP002C1).

Respectfully submitted,



C. Douglass Thomas
Registration No. 32,947

5150 El Camino Real,
Building A, Ste. 22
Los Altos, CA 94022

PAGE 3/10 * RCVD AT 7/22/2008 5:40:34 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/44 * DNIS:2738300 * CSID:650 903 9800 * DURATION (mm-ss):02-32

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Form 1449 (Modified)	Atty. Docket No.	IPVBP002C1
	Application No.:	12/157,092
Information Disclosure Statement By Applicant	Applicant	CHEUNG et al.
	Filing Date	June 6, 2008
	Group	2627
(Use Several Sheets if Necessary)		Page 1 of 7

U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	1.	3,942,139	Mar.-76	Cooper et al.			
	2.	3,974,335	Aug.-76	Blackledge			
	3.	4,128,738	Dec.-78	Gallery			
	4.	4,006,308	Feb.-77	Ponsgen			
	5.	4,622,440	Nov.-86	Slavin			
	6.	4,823,908	Apr.-89	Tanaka			
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	26.	5,870,484	Feb.-99	Greenberger			
	27.	5,943,430	Aug.-99	Saitoh			

Examiner	Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Form 1449 (Modified)	Atty. Docket No.	IPVBP002C1
	Application No.:	12/157,092
Information Disclosure Statement By Applicant	Applicant	CHEUNG et al.
	Filing Date	June 6, 2008
	Group	2627
(Use Several Sheets if Necessary)		Page 2 of 7

	28.	6,011,855	Jan.-00	Selfridge et al.			
	29.	6,058,315	May-00	Clark			
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	57.	2002/0048382 A1	Apr.-02	Hou			

Examiner	Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

PAGE 5/10 * RCVD AT 7/22/2008 5:40:34 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/44 * DNIS:2738300 * CSID:650 903 9800 * DURATION (mm-ss):02-32

Form 1449 (Modified)	Atty. Docket No.	IPVBP002C1
	Application No.:	12/157,092
Information Disclosure	Applicant	CHEUNG et al.
Statement By Applicant	Filing Date	June 6, 2008
	Group	2627
(Use Several Sheets if Necessary)		Page 3 of 7

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	74.	2004/0202339 A1	Oct.-04	O'Brien, Jr. et al.			
	75.	2004/0204168 A1	Oct.-04	Laurila			
	76.	2007/0287516 A1	Dec.-07	Cheung			

Foreign Documents

Init.		Document No.	Date	Country	Class	Subclass	Translation Yes	Translation No

Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)

	A	PCT International Search Report, RE: PCT/US04/11972, January 31, 2005.
	B	PCT Written Opinion of the International Searching Authority, RE: PCT/US04/11972, January 31, 2005.
	C	American Technology Corporation, HyperSonic Sound, January 22, 2002, www.atacsd.com.

Examiner	Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Form 1449 (Modified)	Atty. Docket No.	IPVBP002C1
	Application No.:	12/157,092
Information Disclosure Statement By Applicant	Applicant	CHEUNG et al.
	Filing Date	June 6, 2008
	Group	2627
(Use Several Sheets if Necessary)		Page 4 of 7

	D	American Technology Corporation, "Technology Introduction," 2001, pp.1-19.
	E	American Technology Corporation, "Theory, History, and the Advancement of Parametric Loudspeakers - A Technology Overview," White Paper, 2002, pp. 1-27.
	F	American Technology Corporation, "HSS Directed Audio Sound System, Model Series: 220," Product Information, 2003.
	G	American Technology Corporation;"Technology Licensing - HyperSonic Sound," 2003, pp. 1-3.
	H	Aoki, K. et al., "Parametric Loudspeaker-Applied Examples," Electronics and Communications in Japan, Part 3, Vol. 77, No. 1, 1994, pp. 64-74.
	I	Averkiou, M.A. et al., "Self-demodulation of amplitude- and frequency-modulated pulses in a thermoviscous fluid," The Journal of the Acoustical Society of America , 94(5), November 1993, pp. 2876-2883.
	J	Baker, A. C., "Nonlinear pressure fields due to focused circular apertures," The Journal of the Acoustical Society of America, 91(2), February 1992, pp. 713-717.
	K	Bennett, M. B. et al., "Parametric array in air," The Journal of the Acoustical Society of America, Vol. 57, No. 3, March 1975, pp. 562-568.
	L	Berktay, H.O., "Possible Exploitation of Non-Linear Acoustics in Underwater Transmitting Applications," J. Sound Vib. (1965) 2(4), 435-461.
	M	Berntsen, J. et al., "Interaction of sound waves. Part IV: Scattering of sound by sound, "The Journal of the Acoustical Society of America, 86(5), November 1989, pp. 1968-1983.
	N	Berntsen, J. et al., "Nearfield of a large acoustic transducer. Part IV: Second harmonic and sum frequency radiation," The Journal of the Acoustical Society of America, 75(5), May 1984, pp. 1383-1391.
	O	Brain, Marshall, How USB Ports Work, October 11, 2002, www.howstuffworks.com/usb.
	P	Darvennes, C. M., et al., "Effects of absorption on the nonlinear interaction of sound beams," The Journal of the Acoustical Society of America , 89(3), March 1991, pp. 1028-1036.
	Q	Darvennes, C. M., et al., "Scattering of sound by sound from two Gaussian beams," The Journal of the Acoustical Society of America , 87(5), May 1990, pp. 1955-1964.
	R	Druyvesteyn, W. F., et al., "Personal Sound," J. Audio Eng. Soc., Vol. 45, No. 9, September 1997, pp. 685-701.

Examiner	Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Form 1449 (Modified)	Atty. Docket No.	IPVBP002C1
	Application No.:	12/157,092
Information Disclosure	Applicant	CHEUNG et al.
Statement By Applicant	Filing Date	June 6, 2008
	Group	2627
(Use Several Sheets if Necessary)		Page 5 of 7

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Examiner	Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Form 1449 (Modified)	Atty. Docket No.	IPVBP002C1
	Application No.:	12/157,092
Information Disclosure	Applicant	CHEUNG et al.
Statement By Applicant	Filing Date	June 6, 2008
	Group	2627
(Use Several Sheets if Necessary)		Page 6 of 7

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	AQ	Palm™ Tungsten™ C Handheld, Palm Store of Yahoo! Shopping, downloaded April 23, 2003, pp. 1-3.
	AR	Palm™ Zire™ 71 Handheld, Palm Store of Yahoo! Shopping, downloaded April 23, 2003, pp. 1-3.
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Form 1449 (Modified)	Atty. Docket No.	IPVBP002C1
	Application No.:	12/157,092
Information Disclosure Statement By Applicant	Applicant	CHEUNG et al.
	Filing Date	June 6, 2008
	Group	2627
(Use Several Sheets if Necessary)		Page 7 of 7

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	AY	Zemanek, J. "Beam Behavior within the Nearfield of a Vibrating Piston," The Journal of the Acoustical Society of America, Vol. 42, No. 1 (Part 2), 1971, pp.181-191.

Examiner	Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

PAGE 10/10 * RCVD AT 7/22/2008 5:40:34 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/44 * DNIS:2738300 * CSID:650 903 9800 * DURATION (mm-ss):02-32

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
12/157,092	06/06/2008	Kwok Wai Cheung	IPVBP002C1

CONFIRMATION NO. 6143

34071
IPVENTURE, INC.
5150 EL CAMINO REAL
SUITE A-22
LOS ALTOS, CA 94022

POA ACCEPTANCE LETTER



Date Mailed: 07/28/2008

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 07/18/2008.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/mteklemichael/

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

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
12/157,092	06/06/2008	2627	565	IPVBP002C1	22	2

CONFIRMATION NO. 6143

UPDATED FILING RECEIPT

34071
IPVENTURE, INC.
5150 EL CAMINO REAL
SUITE A-22
LOS ALTOS, CA 94022

OC000000031360113

Date Mailed: 08/05/2008

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

Applicant(s)

Kwok Wai Cheung, Hong Kong, CHINA;
Peter P. Tong, Mountain View, CA;
C. Douglass Thomas, Campbell, CA;

Power of Attorney: The patent practitioners associated with Customer Number 34071

Domestic Priority data as claimed by applicant

This application is a CON of 10/826,527 04/15/2004 PAT 7,388,962
which claims benefit of 60/462,570 04/15/2003
and claims benefit of 60/469,221 05/12/2003
and claims benefit of 60/493,441 08/08/2003

Foreign Applications

If Required, Foreign Filing License Granted: 06/20/2008

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 12/157,092**

Projected Publication Date: 11/13/2008

Non-Publication Request: No

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

Title

Directional hearing enhancement systems

Preliminary Class

381

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

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

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
12/157,092	06/06/2008	Kwok Wai Cheung	IPVBP002C1

CONFIRMATION NO. 6143

34071
IPVENTURE, INC.
5150 EL CAMINO REAL
SUITE A-22
LOS ALTOS, CA 94022

PUBLICATION NOTICE

OC000000033078654

Title: Directional hearing enhancement systems

Publication No.US-2008-0279410-A1
Publication Date:11/13/2008

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

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NOTES/COMMENTS:

Transmitted herewith are the following documents for entry into the above-noted file:

Information Disclosure Statement	2 pages
Form 1449	1 page
1 cited reference	6 pages

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: CHEUNG et al.	Attorney Docket No.: IPVBP002C1
Application No.: 12/157,092	Examiner: Unassigned
Filed: June 6, 2008	Group: 2627

Title: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS

CERTIFICATE OF FACSIMILE

I hereby certify that this correspondence is being transmitted by facsimile to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on January 21, 2009.

Signed: Patricia Tate
Printed Name: Patricia Tate

INFORMATION DISCLOSURE STATEMENT
37 CFR §§1.56 AND 1.97(b)

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

Dear Sir:

The references listed in the attached PTO Form 1449, copies of which are attached, may be material to examination of the above-identified patent application. Applicants submit these references in compliance with their duty of disclosure pursuant to 37 CFR §§1.56 and 1.97. The Examiner is requested to make these references of official record in this application.

This Information Disclosure Statement is not to be construed as a representation that a search has been made, that additional information material to the examination of this application does not exist, or that these references indeed constitute prior art.

This Information Disclosure Statement is: (i) filed within three (3) months of the filing date of the above-referenced application, (ii) believed to be filed before the mailing date of a first Office Action on the merits, or (iii) believed to be filed before the mailing of a first Office Action after the filing of a Request for Continued Examination under §1.114.

PAGE 2/10 * RCVD AT 1/21/2009 8:00:37 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-6/39 * DNIS:2738300 * CSID:650 903 9800 * DURATION (mm-ss):01-46

Accordingly, it is believed that no fees are due in connection with the filing of this Information Disclosure Statement. However, if it is determined that any fees are due, the Commissioner is hereby authorized to charge such fees to Deposit Account 50-3874 (Order No. IPVBP002C1).

Respectfully submitted,



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5150 El Camino Real,
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Los Altos, CA 94022

PAGE 3/10 * RCVD AT 1/21/2009 8:00:37 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-6/39 * DNIS:2738300 * CSID:650 903 9800 * DURATION (mm-ss):01-46

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Form 1449 (Modified)	Atty. Docket No.	IPVBP002C1
	Application No.:	12/157,092
Information Disclosure Statement By Applicant	Applicant	CHEUNG
	Filing Date	June 6, 2008
	Group	2627
(Use Several Sheets if Necessary)		Page 1 of 1

U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	1.	4,292,679 A	Sept.-81	Kondo et al.			
	2.	4,476,571 A	Oct.-84	Tokumo et al			
	3.	4,625,318	Nov.-86	Snyder			
	4.	5,662,157	Oct.-97	Asmussen et al.			
	5.	6,259,731 B1	Jul.-01	Dent et al.			
	6.	6,464,040 B1	Nov.-02	Wang			
	7.	6,488,970 B2	Dec.-02	Colmenarez et al.			
	8.	6,591,085 B1	Jul.-03	Grady			
	9.	6,671,494 B1	Dec.-03	James			
	10.	2003/0156495 A1	Aug.-03	Haase et al.			
	11.	2004/0114772 A1	Jun.-04	Zlotnick			

Foreign Documents

Init.		Document No.	Date	Country	Class	Subclass	Abstract Translation Yes	No
		JP 01109898A	Apr-89	Japan			X	

Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)

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⑲日本国特許庁(JP) ⑫特許出願公開

⑬公開特許公報(A) 平1-109898

⑤Int.Cl.⁴		識別記号	庁内整理番号	⑬公開 平成1年(1989)4月26日
H 04 R	3/00	3 1 0	8524-5D	
H 04 B	9/00		P-8523-5K	
H 04 Q	9/00	3 0 1	E-6945-5K	
		3 1 1	U-6945-5K	
H 04 R	1/32	3 1 0	A-7314-5D	
	5/02		H-8524-5D	審査請求 未請求 発明の数 1 (全4頁)

⑤発明の名称 ステレオ用リモコン位置検出装置

⑳特 願 昭62-267015
㉒出 願 昭62(1987)10月22日

㉑発明者 栗山 啓一 大阪府門真市大字門真1006番地 松下電器産業株式会社内
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㉔代理人 弁理士 中尾 敏男 外1名

明細書

1、発明の名称

ステレオ用リモコン位置検出装置

2、特許請求の範囲

リモコン位置検出信号発生手段と複数の命令をデジタルコードで構成した通常信号発生手段と、前記リモコン位置検出信号発生手段と通常信号発生手段よりの信号を赤外光として出力する赤外線信号発生手段を有するリモコンと、前記リモコンから発信された赤外線信号をそれぞれ受光するリモコン位置検出信号受光手段と通常信号受光手段とを有し、スピーカ本体支持部とスピーカ本体との間を回転体で接続し、前記リモコン位置検出信号受光手段の出力を受けて、前記スピーカ本体の中心軸を前記リモコンに向けるステレオ用リモコン位置検出装置。

3、発明の詳細な説明

産業上の利用分野

本発明は赤外光を媒体としたステレオワイヤレスリモコンの位置検出装置に関するものである。

従来の技術

ステレオにおいて通信操作装置としてはワイヤード又は、ワイヤレスのリモコンを使用して使用者の耳で、確認しながら左右スピーカのバランスを操作するものがあった。

発明が解決しようとする問題点

しかしながら上記の従来技術では主として使用者が自分の耳で確認しながら操作するものが主であり、使用者に不便な手間がかかっていた。

本発明は上記課題に着目し、赤外線を使用したリモコン位置検出装置により複数個のスピーカを使用者のいる方向に向けることができるシステムを提供するものである。

問題点を解決するための手段

上記課題を解決するために、本発明のステレオ用のリモコン位置検出装置は、リモコン位置検出信号発生手段と複数の命令をデジタルコードで構成した通常信号発生手段と、前記リモコン位置検出信号発生手段と通常信号発生手段よりの信号を赤外光として出力する赤外線信号発生手段を有す

PAGE 5/10 * RCVD AT 1/21/2009 8:00:37 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-6/39 * DNIS:2738300 * CSID:650 903 9800 * DURATION (mm-ss):01-46

るリモコンと、前記リモコンから発信された赤外線信号をそれぞれ受光するリモコン位置検出信号受光手段と通常信号受光手段とを有し、スピーカ本体支持部と本体との間を回転体で接続し、前記リモコン位置検出信号受光手段の出力を受けて、前記スピーカ本体の中心軸を前記リモコンに向けるものである。

作　用

本発明は上記構成により使用者が居る方向に指向性のスピーカを向けることのできるリモコンシステムを構成することができる。

実施例

以下本発明の実施例のステレオ用リモコン位置検出装置について、図を参照しつつ説明する。

第1図は本発明の1実施例におけるリモコン位置検出装置である。同図において1はリモコン、2はリモコン位置検出手段及び通常信号検出手段を備えた受光部である。リモコン1から受光部2への信号は赤外光で送られる。またリモコン位置検出の検知は受光部2への赤外光の入射角で検出することができる。

また受光素子25は受信感度を第5図の25'の様に広指向性としており、どの方向からでも通常信号を受信することができる。

次に第6図により受光部2の内部回路構成について説明する。同図において26はリモコン位置検出信号及び通常信号の切り替え回路、27は増幅回路、28は同調・検波回路、29は波形整形回路である。リモコン1から通常信号が送られているときは通常信号動作信号Bにより、通常信号検出用受光素子からの信号を増幅回路27、同調・検波回路28、波形整形回路29を経て通常信号として出力される。次にリモコン1から位置検出信号が送られているときは、リモコン位置検出動作信号A，B，Cが順次切り替えられ、それぞれに対応してリモコン位置検出用受光素子21，22，23からの信号を増幅回路27、同調・検波回路28を経て、リモコン位置信号として出力される。

以上の実施例によればリモコン位置検出回路と、通常受信回路を、それぞれの受光素子を除いて共用化しているが、他の実施例として、リモコン位置検出用受光素子の指向性を適度な値とすることにより、それぞれの受光素子を共用化することも考えられる。

次に第7図により本発明のステレオ用リモコン位置検出装置の実施例について説明する。同図(A)は側面図、(B)は平面図である。同図において、31、32はスピーカ、34はモータ、33は使用者、30はステレオ用アンプ、チューナ、等を表わしている。受光部2はステレオ用アンプ，チューナ部に取り付けられ、スピーカ31，32はモータ34を介して、台に固定されている。

使用者が、リモコン1を操作すると、受光部2は、リモコン1の方向を検出し、スピーカ31，32の中心軸との角度の差を検出し、モータ34を回転させ、スピーカ31，32の中心軸を、リモコン1の方向に向ける。

発明の効果

以上のように本発明は、ステレオにリモコン位

PAGE 6/10 * RCVD AT 1/21/2009 8:00:37 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-6/39 * DNIS:2738300 * CSID:650 903 9800 * DURATION (mm-ss):01-46

Apple Inc. Exhibit 1002 Page 87

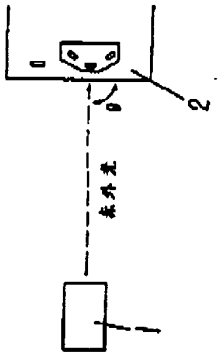
位検出機能を付加することにより、使用者が部屋のどこにいても使用者の方向にスピーカが向き、最もベストなステレオサウンドが楽しめる。

4、図面の簡単な説明

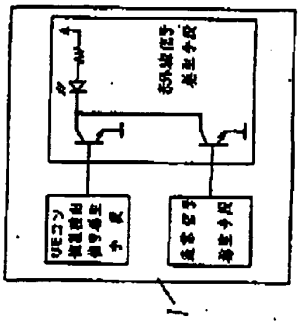
第1図は本発明の実施例におけるリモコン位置検出装置のリモコンと受光部の位置関係を示す図、第2図はリモコン1の内部ブロック図、第3図、第4図、第5図は受光部の受信感度の指向性を示す説明図、第6図は受光部の内部回路構成を示す回路図、第7図はステレオ用リモコン位置検出装置の実施図である。

1……リモコン、2……受光部、21、22、30……リモコン位置検出用受光素子、24……リフレクタ、25……通常信号検出用受光素子、21'、22'、23'……受光素子21、22、23の光学指向特性、25'……受光素子25の光学指向特性、28……リモコン位置検出信号及び通常信号の切り換え回路、27……増幅回路、26……同調・検波回路、29……波形整形回路、30……ステレオアンプ、31……スピーカ、32……スピーカ、33……使用者、34……モータ。

代理人の氏名 弁理士 中 尾 敏 男 ほか1名



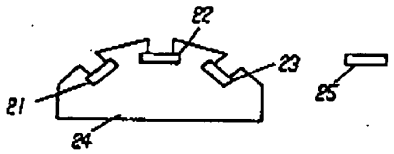
第1図



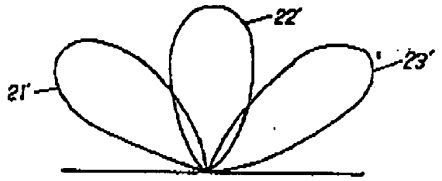
第2図

PAGE 7/10 * RCVD AT 1/21/2009 8:00:37 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-6/39 * DNIS:2738300 * CSID:650 903 9800 * DURATION (mm-ss):01-46

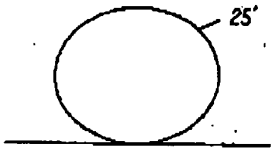
第 3 図

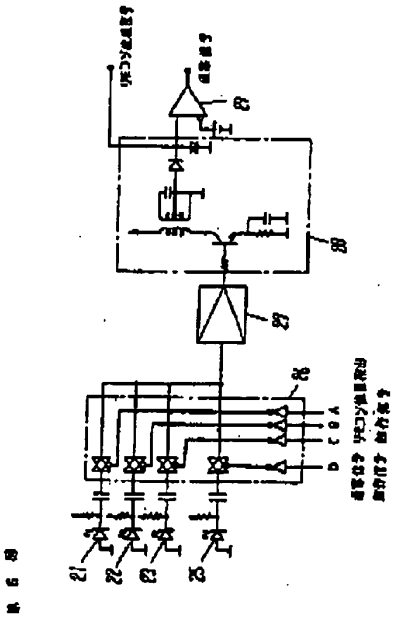


第 4 図



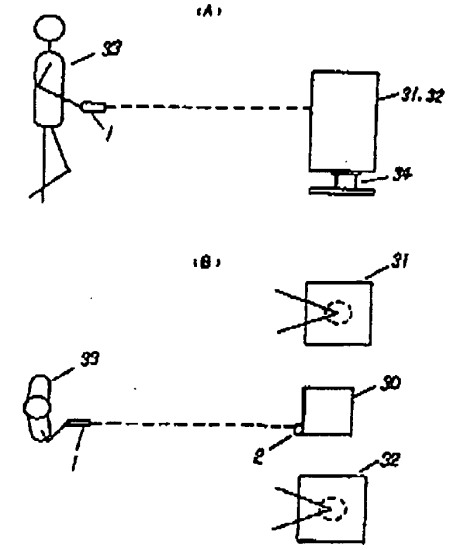
第 5 図





第 6 図

第 7 図



PAGE 8/10 * RCVD AT 1/21/2009 8:00:37 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-6/39 * DNIS:2738300 * CSID:650 903 9800 * DURATION (mm-ss):01-46

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Form 1449 (Modified)	Atty. Docket No.	IPVBP002C1
	Application No.:	12/157,092
Information Disclosure	Applicant	CHEUNG et al.
Statement By Applicant	Filing Date	June 6, 2008
	Group	2627
(Use Several Sheets if Necessary)		Page 1 of 1

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Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
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	2.	6,512,826 B1	Jan.-03	Kim			
	3.	7,269,452	Sept.-07	Cheung			
	4.	2003/0026439 A1	Feb.-03	Yamamoto et al.			
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	6.						
	7.						
	8.						
	9.						
	10.						

Foreign Documents

Init.		Document No.	Date	Country	Class	Subclass	Abstract Translation Yes	No
		KR 2001-0091117A	Oct.-01				X	

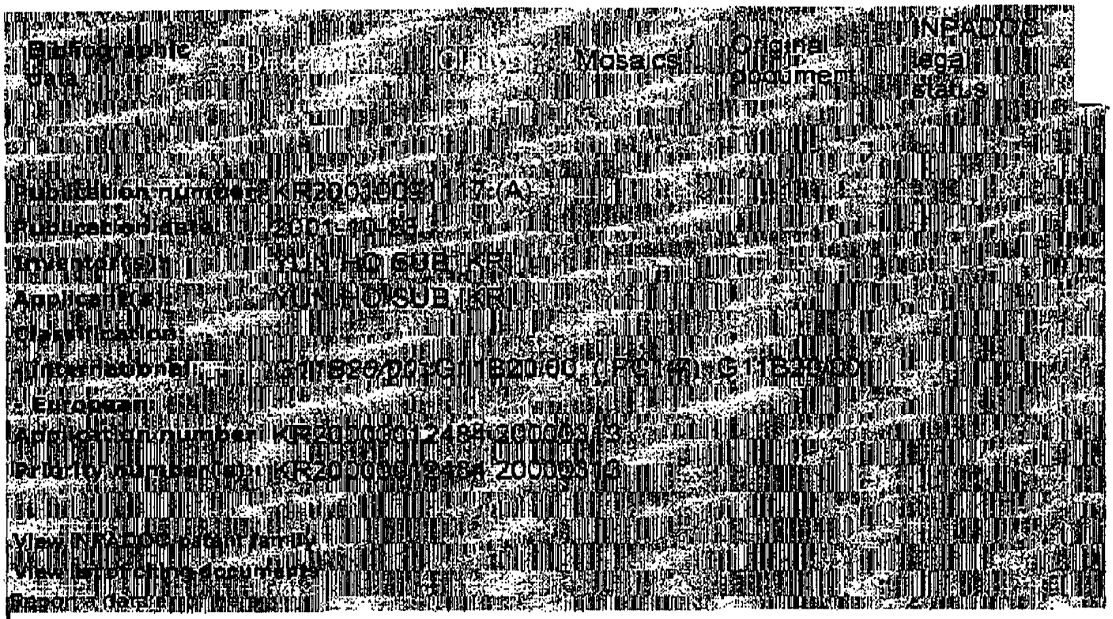
Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)

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	B	Second Office Action re: CN200480010388.8 Chinese Patent Office, Sept. 4, 2009, 6 pages.
	C	
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	H	
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	L	

Examiner	Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

APPARATUS FOR CONTROLLING VOLUME OF AUDIO



Abstract of **KR 20010091117 (A)**

PURPOSE: An apparatus for controlling a volume of an audio is provided to ensure an optimum stereophonic sound even though a user moves within a room while listening to. CONSTITUTION: An ultrasonic transmitting part(120) transmits an ultrasonic wave toward a listener. An ultrasonic receiving part(140) receives sound which is transmitted from the ultrasonic transmitting part(120) and reflected by the listener. A controlling part(150) detects a position of the user by receiving a signal detected by the ultrasonic transmitting/receiving part(120,140) and outputs a volume controlling signal of speakers(22,24,26,28) according to the detected position signal. A volume control apparatus(100) includes the ultrasonic transmitting part(120), the ultrasonic receiving part(140) and the controlling part(150).; The ultrasonic transmitting part(120) and the ultrasonic receiving part(140) are constructed into one group. One, two or more groups may be formed by coupling the unit groups. The ultrasonic transmitting part(120) includes an ultrasonic transmitter(122), an amplifier(124) and an ultrasonic oscillator(126). The ultrasonic receiving part(140) includes an ultrasonic receiver(142), an amplifying part(144) and an A/D converter(146).

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(54) 오디오의 볼륨 조절장치

요약

목적 : 청취자가 청취 도중 실내에서 이동을 하더라도 항상 청취자의 위치에서 최적의 입체음향을 청취할 수 있는 장치를 제공하고자 하는 것이다.

구성 : 본 발명은 스피커 각각의 음량 제어가 가능한 오디오(10)에 있어서,

청취자(30)를 향하여 초음파를 송신하는 초음파 송신부(120)와; 상기 초음파 송신부(120)에서 송신된 초음파가 청취자(30)에 의해 되돌아 오는 음을 수신하는 초음파 수신부(140)와; 상기 초음파 송수신부(120, 140)에서 검출한 신호를 받아 청취자(30)의 위치를 검출하고, 검출된 위치신호에 따라 스피커(22, 24, 26, 28)의 음량조절 신호를 출력하는 제어부(150)로 구성된 것이다.

효과 : 본 발명에 의한 볼륨 제어장치를 이용하면, 실내에서 청취자가 스테레오 음악 등을 감상하면서 전, 후, 좌, 우로 이동을 하더라도 항상 최적의 입체음향을 청취할 수 있는 효과가 있는 것이다.

대표도
도 3

색인어
스테레오, 스피커, 자동음량조절, 위치검출,위치이동

명세서

PAGE 6/30 * RCVD AT 9/30/2009 8:29:19 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/26 * DNIS:2738300 * CSID:16509039800 * DURATION (mm-ss):11-36

도면의 간단한 설명

도 1은 청취자가 실내의 정 중앙에 위치하고 음을 청취하는 상태에서의 음의 전달 과정을 나타내는 예시도.

도 2는 청취자가 좌측에 위치한 상태에서의 음의 전달 과정을 나타내는 예시도.

도 3은 본 발명의 시스템 블럭도.

도 4a는 본 발명에 의한 초음파 송수신부를 각각의 스피커에 설치한 예시도.

도 4b는 본 발명에 의한 일 실시예로서 초음파 송수신부를 1개조로 하여 오디오 본체 내에 설치한 예시도.

*** 주요 도면 부호에 대한 설명 ***

10 : 오디오 22, 24, 26, 28 : 스피커

30 : 청취자 100 : 볼륨 제어장치

120 : 초음파 송신부122 : 초음파 송신기

124 : 증폭기126 : 초음파 발진기

140 : 초음파 수신부142 : 초음파 수신기

144 : 증폭기146 : A/D 변환기

150 : 제어부

발명의 상세한 설명

발명의 목적

발명이 속하는 기술 및 그 분야의 종래기술

본 발명은 오디오에 있어서, 청취자의 위치가 이동 되더라도 자동적으로 이를 검출하여 청취자가 최적의 상태로 입체음향을 청취할 수 있도록 하는 오디오의 볼륨 조절장치를 제공하고자 하는 것이다.

오디오를 이용하여 원하는 음악을 최적의 상태로 청취하기 위해서는, 스피커에서 출력되는 음의 산란을 막기 위해 실내의 내벽을 방음처리 하며, 실내의 각 모서리부에 설치된 각각의 스피커에서 출력되는 음이 중첩되는 실내의 중앙 부위에 앉아 청취하는 것이 가장 최적의 입체음향의 효과를 느끼며 청취할 수 있는 것이다.

이 때, 청취자에 의하여 청취되는 음은 동일한 오디오 및 스피커를 이용한다 하더라도, 실내 벽면의 상태, 실내에 위치한 장식물 등에 의해 음의 차단 및 음의 전달 방해 요소, 스피커의 위치 및 방향 등에 따라 현저히 달라질 수 있는 것이다.

또한, 상기한 각종의 요소를 최적의 상태로 맞춘다 하더라도, 청취자가 청취하는 위치에 따라서도 그 음은 현저히 다르게 들릴 수 있는 것이다.

이를 첨부된 도면에 의하여 설명하면 다음과 같다.

PAGE 7/30 * RCVD AT 9/30/2009 8:29:19 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/26 * DNIS:2738300 * CSID:16509039800 * DURATION (mm-ss):11-36

도 1은 청취자가 실내의 정 중앙에 위치하고 음을 청취하는 상태에서의 음의 전달 과정을 나타내는 예시도이고, 도 2는 청취자가 좌측에 위치한 상태에서의 음의 전달 과정을 나타내는 예시도이다.

도 1에 도시한 바와 같이, 실내의 전면에 오디오(10)가 위치하고 실내의 각 모서리에 각각의 스피커(22, 24, 26, 28)가 위치하고, 청취자(30)가 실내의 정 중앙에 위치한 상태에서의 음의 전달 과정을 나타내는 것으로서,

이 때, 각 스피커(22, 24, 26, 28)에서 출력되는 음이 각 스피커(22, 24, 26, 28)의 정면을 향하여 도시한 바와 같은 파형을 이루며 음이 전달될 것이고, 이에 따라, 각각의 스피커(22, 24, 26, 28)에서 방출된 음이 중첩되는 부분인 실내의 정 중앙 부분에 위치한 청취자(30)는 마치 오케스트라에 의하여 연주하고 있는 것과 같은 착각을 느낄 정도로 최적의 입체음향의 음을 청취할 수 있게 되는 것이다.

이에 반하여 도 2에 도시한 바와 같이, 청취자(30)가 실내의 좌측에 위치한 상태에서 오디오(10)의 음을 청취하는 경우에 있어서는, 전면 좌측 스피커(22) 및 후면 좌측 스피커(26)에 의한 음은 도 1에 도시한 청취자의 위치(30)에서보다 큰 음압 레벨로 청취가 되는 반면에, 전면 우측 스피커(24) 및 후면 우측 스피커(28)에 의한 음은 상대적으로 낮은 음압 레벨로 밖에는 청취가 불가능 한 것이다.

이에 따라, 도 2에 도시한 청취자(30)의 위치에서는 전,후면 좌측 스피커(22, 26)에 의하여 전달되는 음은 크게 들리고, 전,후면 우측 스피커(24, 28)에 의하여 전달되는 음은 작게 들리게 됨으로서, 최적의 오디오의 입체음향 효과를 느낄 수 없게 되는 것이다.

도 2는 일 예로 청취자(30)가 실내의 정 중앙 부분에서 좌측으로 이동한 상태에서의 청취 상태를 도시하였지만, 실내의 상태 및 오디오, 스피커의 배치를 최적으로 설치한 상태에서도 청취자(30)의 위치가 우측, 전면 또는 후면 등으로 위치를 이동한다면, 각각의 상황에 따라 청취자가 청취하게 되는 음은 전혀 다른 음으로 들리게 되는 것이다.

또한, 실내에 스피커(22, 24, 26, 28)를 4개 설치한 경우의 예를 들어 설명하였으나, 이는 2개의 스피커를 전면 좌우측에만 설치한 경우에 있어서도 동일한 문제점이 발생되는 것이다.

따라서, 균등한 입체음향을 청취하기 위하여 고급 오디오 및 스피커를 설치하고, 실내 방음설비 등의 장치가 되어 있는 경우에 있어서도, 청취자가 청취하는 위치에 따라서는 상기한 고 비용의 장치 등을 설치한 효과를 볼 수 없는 문제점이 있는 것이다.

발명이 이루고자 하는 기술적 과제

본 발명은 상기한 문제점을 해결하고자 안출된 것으로서, 청취자가 청취 도중 실내에서 이동을 하더라도 항상 청취자의 위치에서 최적의 입체음향의 음을 청취할 수 있는 장치를 제공하고자 하는 것이다.

발명의 구성 및 작용

상기한 목적을 달성하기 위한 본 발명에서는 초음파 등을 이용하여 실내의 청취자의 위치를 검출하고, 상기 검출된 청취자의 위치에 따라, 청취자의 위치로 부터 근접한 위치에 설치된 스피커에서는 작은 소리가 나게 하며, 청취자로 부터 멀리 떨어진 위치에 설치된 스피커에서는 큰 소리가 나도록 함으로서, 청취자의 청취 위치가 변화하더라도 청취자의 위치에서는 항상 최적의 크기의 입체음향을 청취할 수 있도록 구성된 것이다.

이를 첨부된 도면에 의하여 설명하면 다음과 같다.

도 3은 본 발명의 블럭도이며, 도 4a는 본 발명에 의한 초음파 송수신부를 각각의 스피커에 설치한 예시도이고, 도 4b는 본 발명에 의한 일 실시 예로서, 초음파 송수신부를 1개로 하여 오디오 본체 내에 부착하여 설치한 예시도이다.

본 발명은 스피커 각각의 음량 제어가 가능한 오디오(10)에 있어서,

PAGE 8/30 * RCVD AT 9/30/2009 8:29:19 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/26 * DNIS:2738300 * CSID:16509039800 * DURATION (mm-ss):11-36

Apple Inc. Exhibit 1002 Page 94

청취자(30)를 향하여 초음파를 송신하는 초음파 송신부(120)와; 상기 초음파 송신부(120)에서 송신된 초음파가 청취자(30)에 의해 반사되어 되돌아 오는 음을 수신하는 초음파 수신부(140)와; 상기 초음파 송수신부(120, 140)에 의하여 검출한 신호를 받아 청취자(30)의 위치를 검출하고, 검출된 위치신호에 따라 스피커(22, 24, 26, 28)의 음량조절 신호를 출력하는 제어부(150)로 구성된 것이다.

상기한 본 발명에 의한 볼륨 제어장치(100)는 초음파 송신부(120)와 초음파 수신부(140) 및 제어부(150)로 구성된 것으로서, 초음파 송신부(120)와 초음파 수신부(140)는 한개 조로 구성되며, 1 조, 2 조 또는 그 이상의 다수의 조로 결합하여서 구성한 것이다.

이 때, 초음파 송신부(120)는 초음파 송신기(122), 증폭기(124), 초음파 발진기(126)로 구성되며,

초음파 수신부(140)는 초음파 수신기(142), 증폭부(144), A/D변환기(146)로 구성된 것으로서,

상기한 초음파 송신부(120)와 초음파 수신부(140)는 한개 조를 이루며 각각의 스피커(22 24 26, 28)에 부착하여 구성되는 것으로서, 만일 4개의 스피커(22, 24, 26, 28)에 설치하여 청취자(30)의 위치를 검출하고자 하는 경우에는, 상기한 초음파 송신부(120) 및 초음파 수신부(140)를 4개조로 구성하여 각각의 스피커(22, 24, 26, 28)에 설치하며, 이들 초음파 송수신부(120, 140)에 의하여 청취자(30)의 위치를 검출하고, 검출된 위치 데이타를 제어부(150)로 전달하여 오디오(10)에 연결된 각각의 스피커(22, 24, 26, 28)에서 출력되는 음량을 조절하기 위한 것이다.

상기와 같은 제어부(150)는 마이크로 프로세서(MPU) 등으로 구성되며, 각각의 초음파 수신부(140)에서 검출된 청취자(30)의 위치 정보 데이타를 A/D 변환기(145: Analog to Digital Converter)에서 디지탈 신호로 변환된 신호를 입력받아, 상기 신호에 의해 청취자(30)의 위치를 판단하고, 상기 판단된 청취자(30)의 청취 위치에 따라, 미리 입력된 정도의 크기로 각각의 스피커(22, 24, 26, 28)에서 출력되는 음량을 조절할 수 있도록 구성된 것이다.

상기 제어부(150)는 상기 초음파 송수신부(120, 140)에 의하여 검출한 상기 청취자(30)의 위치정보 데이타를 연산하여, 청취자(30)의 위치를 판단하고, 그 결과에 따라 각각의 스피커(22, 24, 26, 28)에서 출력되는 음의 크기를 조절할 수 있도록 미리 내장된 마이크로 프로세서에 프로그램화하여 저장되어 있는 데이타를 이용하여 오디오(10)에 볼륨 조절 신호를 출력함으로써, 오디오(10)에 의하여 각각의 스피커(22, 24, 26, 28)의 출력을 조절할 수 있도록 하는 것이다.

상기와 같이 구성된 본 발명에 의하여 작동되는 과정을 살펴보면,

먼저, 음악을 청취하기 위하여 오디오를 켠뒤, 청취자가 위치 변동에 따른 음의 보상을 위하여 본 발명에 의한 볼륨 제어장치(100)의 전원을 켜면,

각각의 스피커(22, 24, 26, 28)에 설치된 초음파 송신부(120)와 초음파 수신부(140)에 의하여 청취자(30)의 위치를 각각 검출하고, 제어부(150)는 상기 검출된 각각의 데이타를 비교 판단 함으로써 정확한 청취자(30)의 위치를 판단하게 되고, 상기 판단된 신호에 의하여 상기 제어부(150)에서는 스피커(22, 24, 26, 28) 각각에 맞는 음량조절 신호를 오디오(10)의 볼륨조절단자(미도시)로 출력하게 되고, 오디오(10)에서는 조절된 음량으로 각각의 스피커(22, 24, 26, 28)로 음을 출력하게 되는 것이다.

상기와 같은 본 발명의 동작을 좀 더 상세히 살펴보면,

먼저, 본 발명에 의한 볼륨제어장치(100)에 전원을 인가하면, 각각의 스피커(22, 24, 26, 28)에 위치한 초음파 발진기(126)에서 발진된 초음파 주파수가 증폭기(124)에서 증폭되어 초음파 송신기(122)에 의하여 실내를 향하여 송신된다.

PAGE 9/30 * RCVD AT 9/30/2009 8:29:19 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/26 * DNIS:2738300 * CSID:16509039800 * DURATION (mm-ss):11-36

Apple Inc. Exhibit 1002 Page 95

이 때, 실내의 특정 위치에 위치한 청취자(30)에 의하여 반사된 초음파 신호는 각각의 초음파 수신기(142)에 수신되고,

상기 수신된 초음파 신호는 초음파 수신기(142)에 의하여 전기적 신호로 변환된 뒤, 증폭기(144)에서 증폭되어, 제어기(150)에서 상기한 신호를 검출 및 판단하기 위하여 A/D 변환기(146)에 의하여 디지탈 신호로 변환된다.

상기 스피커(22, 24, 26, 28)에 위치한 각각의 수신부에서 디지탈 신호로 변환된 청취자(30)의 위치 정보 데이타는 제어부(150)에 인가되고, 제어부(150)는 각각의 위치정보 데이타를 비교 판단하여, 청취자(30)의 청취 위치를 검출하게 되고,검출된 청취자(30)의 위치에 따른 각 스피커(22, 24, 26, 28)의 음량을 미리 프로그래밍된 데이타에 의하여 각각 별도로 제어함으로써, 청취자는 실내의 어떠한 위치에서도 항상 완벽한 입체음향의 음을 청취할 수 있는 것이다.

이 때, 청취자(30)의 위치를 검출하기 위한 초음파 송신부(120)와 초음파 수신부(140)는 실내의 각 모서리 즉, 4곳에 설치된 각각의 스피커(22, 24, 26, 28)에 각각 초음파 송신부(120)와 초음파 수신부(140)를 한개조로 구성하여 설치함으로써, 각 방향에서 검출된 청취자(30)의 위치에 따라 각각의 스피커(22, 24, 26, 28)의 음량이 조절되는 것이다.

이상에서는 4개의 스피커(22, 24, 26, 28)에 상기 초음파 송신부(120)와 초음파 수신부(140)를 한개조씩 각각 설치하여 스피커(22, 24, 26, 28) 각각의 음량을 조절하는 것으로 설명하였으나,

한개조로 구성되는 초음파 송신부(120)와 초음파 수신부(140)를 음량조절이 필요한 스피커에만 설치할 수 도 있다.

또한, 상기 초음파 송신부(120)와 초음파 수신부(140)를 한개조 만을 구성하여 오디오(10) 본체에 설치하여 각각의 스피커(22, 24, 26, 28) 음량을 제어할 수 도 있으며,

상기 한개의 초음파 발신부(120)를 오디오(10) 본체에 설치하고, 각각의 스피커(22, 24, 26, 28)에는 초음파 수신부(140)를 각각 설치하여 상기 초음파 수신부(140)에서 수신된 신호를 순차적으로 받아 비교 판단하여 청취자(30)의 위치를 검출하고, 그 결과로 각각의 스피커(22, 24, 26, 28)의 음량을 조절하도록 신호를 출력하는 제어부(150)로 구성하여 각각의 스피커(22, 24, 26, 28) 음량을 제어할 수 도 있는 것이다.

또한, 상기한 4개조의 초음파 송수신부(120, 140)에 의한 청취자(30)의 위치 검출 이외에도 다양의 초음파 송수신부(120, 140)를 더 설치함으로써, 더욱 정밀한 청취자(30)의 위치 판단 데이타를 얻을 수 있는 것이다.

예를 들면, 2개조의 초음파 송수신부(120, 140)를 사용하는 경우에는 전면 또는 후면의 스피커에 설치하여 사용할 수 있으며, 상기한 4개조 이상의 초음파 송수신부(120, 140)를 설치하여 사용하고자 하는 경우에는, 각각의 스피커 사이에 상기한 초음파 송수신부(120, 140)를 더 설치하여 사용할 수 있는 것이다.

이상에서는 초음파 송신기 및 초음파 수신기에 의하여 청취자의 위치를 검출하는 구성에 대하여 설명하였지만, 상기한 초음파 송신기 및 수신기를 포함하는 초음파 센서 이외에도 적외선 센서 등을 이용하여서도 적용 가능한 것이다.

발명의 효과

이상에서 설명한 바와 같이, 본 발명에 의한 분류 제어장치에 의하여, 실내에서 청취자가 스테레오 음악 등을 감상하면서 전, 후, 좌, 우로 이동을 하더라도 항상 최적의 입체음향의 음을 청취할 수 있는 효과가 있는 것이다.

(57) 청구의 범위

청구항 1.

스피커 각각의 음량 제어가 가능한 오디오(10)에 있어서,

PAGE 10/30 * RCVD AT 9/30/2009 8:29:19 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/26 * DNIS:2738300 * CSID:16509039800 * DURATION (mm-ss):11-36

Apple Inc. Exhibit 1002 Page 96

청취자를 향하여 초음파를 송신하는 초음파 송신부;

상기 초음파 송신부에서 송신된 초음파가 청취자에 의해 되돌아 오는 음을 수신하는 초음파 수신부;

상기 초음파 송수신부에서 검출한 신호를 받아 청취자의 위치를 검출하고, 검출된 위치신호에 따라 스피커의 음량조절 신호를 출력하는 제어부;

로 구성된 것을 특징으로 하는 오디오의 볼륨 제어장치.

청구항 2.

제 1 항에 있어서,

상기 초음파 송신부는 초음파를 발진하는 초음파 발신기와, 상기 초음파 발진기에서 출력되는 초음파를 증폭하여 청취자를 향해 송신하는 증폭기 및 초음파 송신기;

로 구성되며,

상기 초음파 수신부는 상기 초음파 송신기에서 송신한 초음파가 상기 청취자에 의해 되돌아 오는 초음파를 수신하는 초음파 수신기와, 상기 초음파 수신기에서 수신된 초음파를 증폭하여 디지탈 신호로 변환하는 증폭기 및 A/D변환기;

로 구성되고,

상기 A/D변환기의 신호를 입력 받아 상기 청취자의 위치를 검출하고, 그 검출된 신호에 따라 상기 스피커의 음량을 조절하는 신호를 상기 오디오로 출력하는 제어부;

로 구성된 것을 특징으로 하는 오디오의 볼륨 제어장치.

청구항 3.

제 1 항에 있어서,

상기 초음파 송신부와 초음파 수신부를 한개조로 구성하여 오디오에 부착하거나, 또는 다수개 조로 구성하여 각각의 스피커에 부착되는 것을 특징으로 하는 오디오의 볼륨 제어장치.

청구항 4.

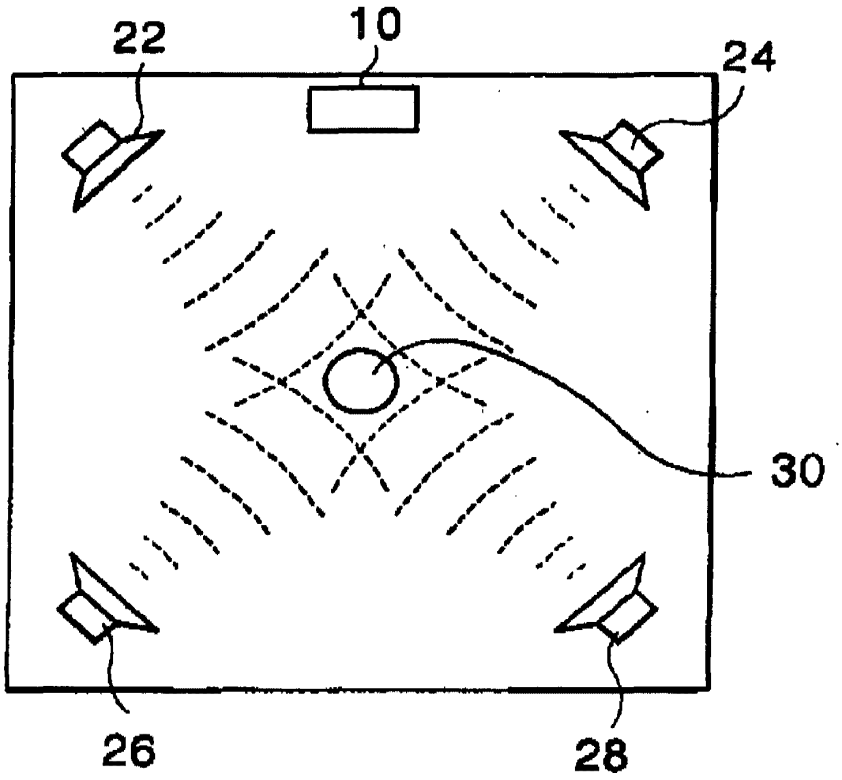
제 1 항에 있어서,

상기 청취자의 위치 검출하기 위한 장치로서, 적외선 센서를 사용하는 것을특징으로 하는 오디오의 볼륨 제어장치.

도면

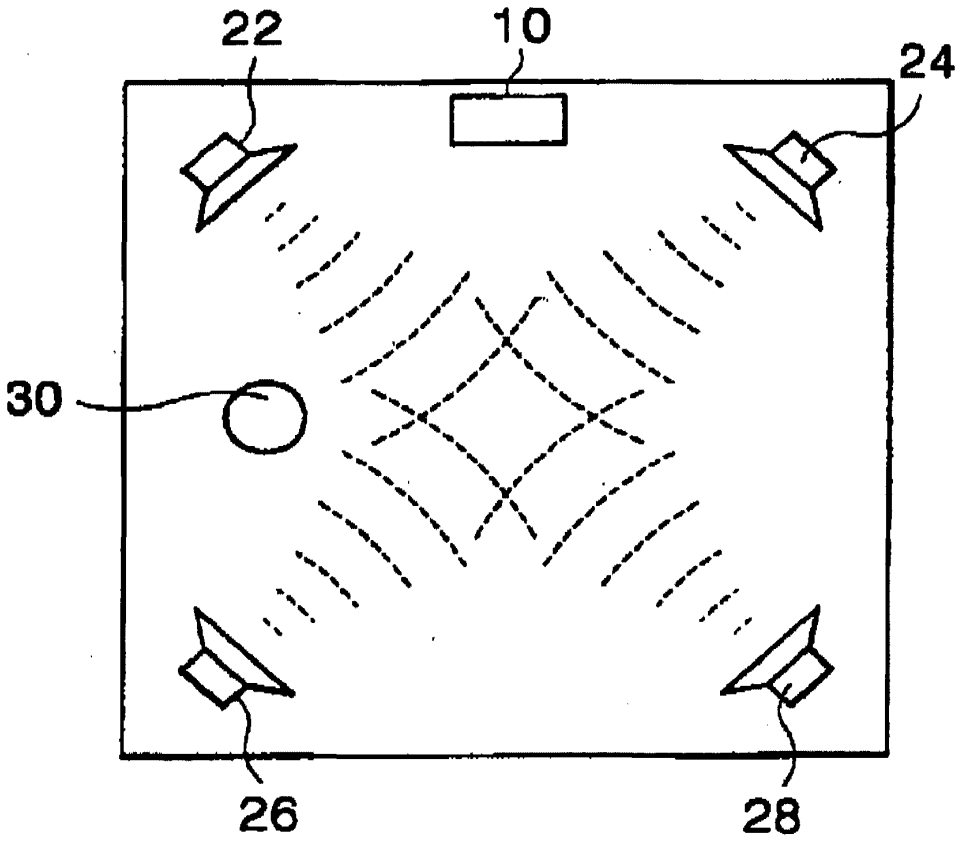
PAGE 11/30 * RCVD AT 9/30/2009 8:29:19 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/26 * DNIS:2738300 * CSID:16509039800 * DURATION (mm-ss):11-36

Apple Inc. Exhibit 1002 Page 97



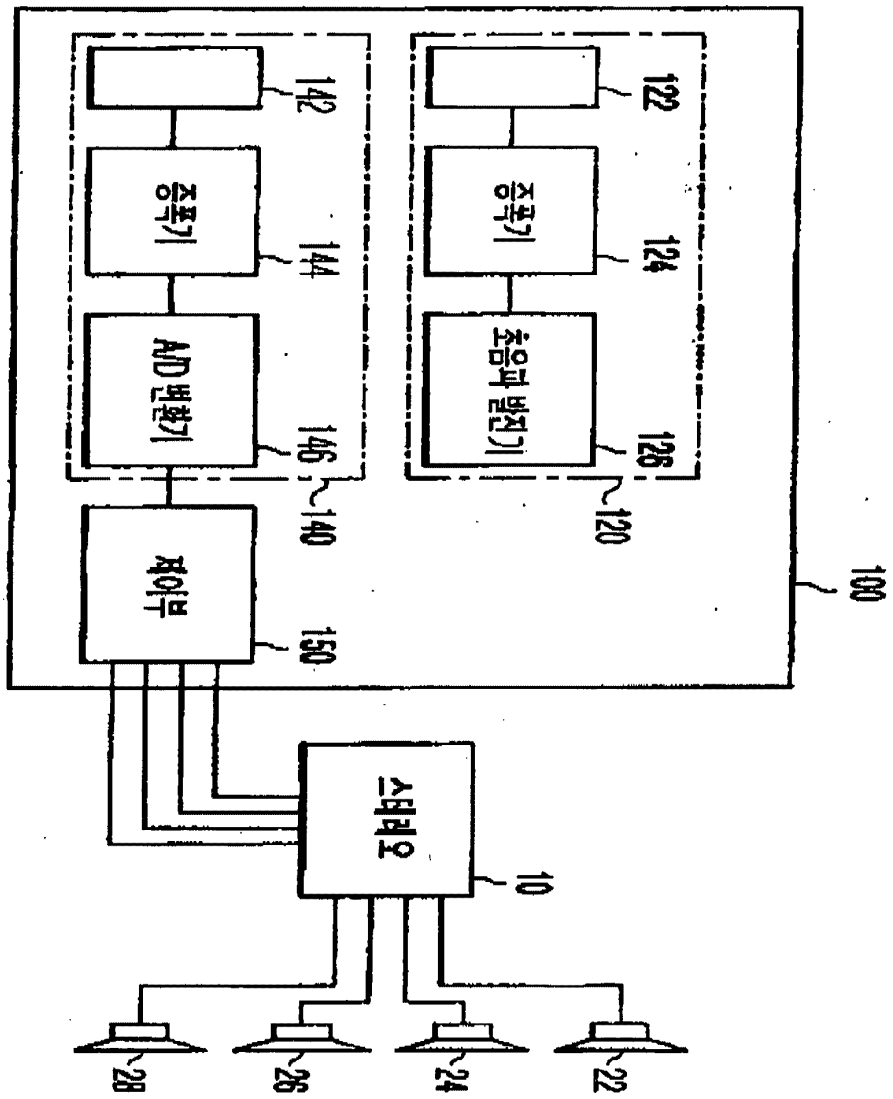
PAGE 12/30 * RCVD AT 9/30/2009 8:29:19 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/26 * DNIS:2738300 * CSID:16509039800 * DURATION (mm-ss):11-36

도면 2



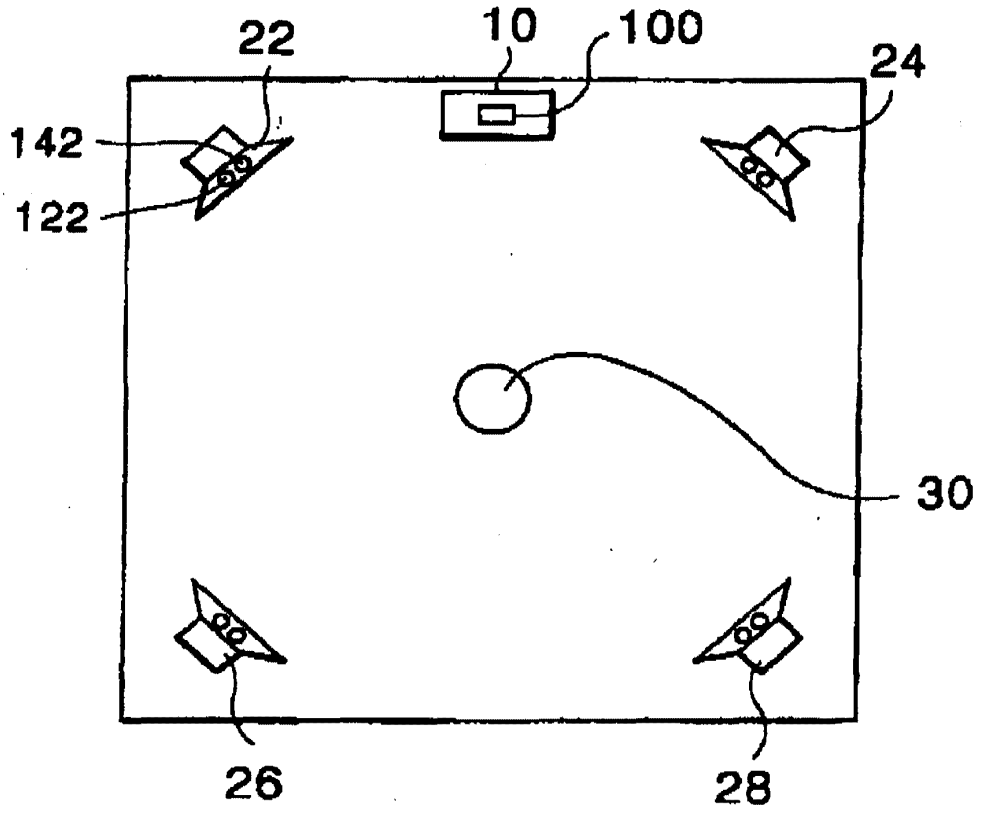
PAGE 13/30 * RCVD AT 9/30/2009 8:29:19 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/26 * DNIS:2738300 * CSID:16509039800 * DURATION (mm-ss):11-36

도면 3



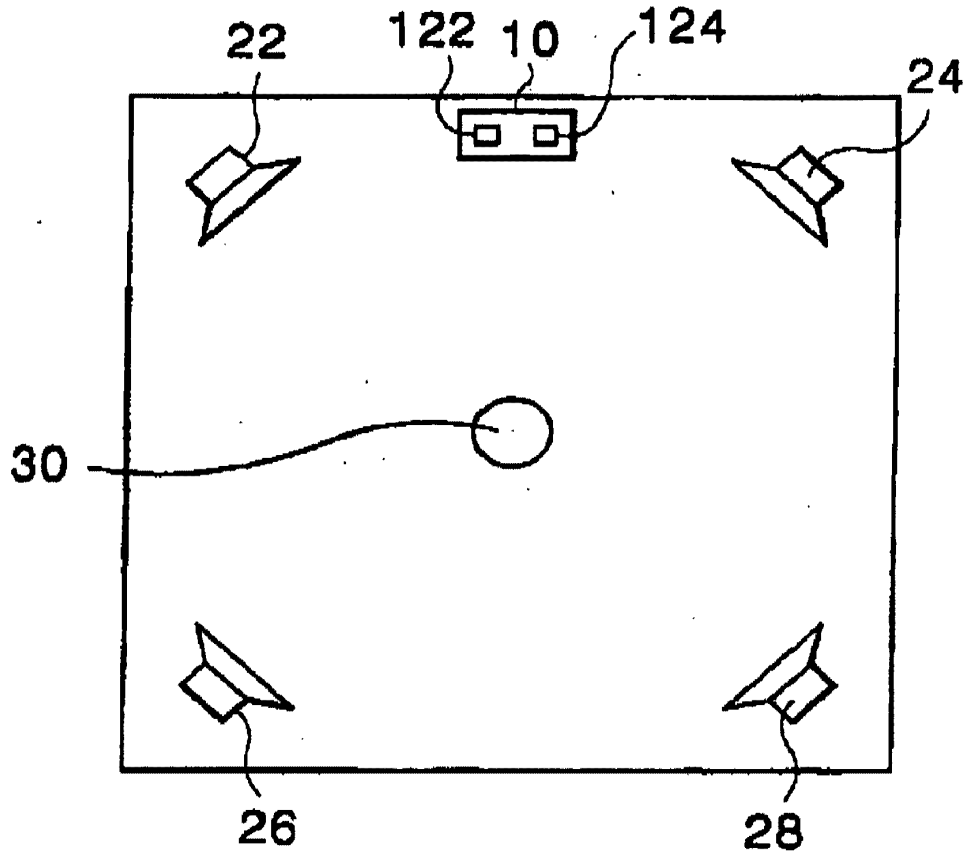
PAGE 14/30 * RCVD AT 9/30/2009 8:29:19 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/26 * DNIS:2738300 * CSID:16509039800 * DURATION (mm-ss):11-36

도면 4a



PAGE 15/30 * RCVD AT 9/30/2009 8:29:19 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/26 * DNIS:2738300 * CSID:16509039800 * DURATION (mm-ss):11-36

도면 4b



PAGE 16/30 * RCVD AT 9/30/2009 8:29:19 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/26 * DNIS:2738300 * CSID:16509039800 * DURATION (mm-ss):11-36

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SEP 3 0 2009

COMPANY: United States Patent Office	**DATE:** 9/30/2009
FAX NUMBER: 571-273-8300	**NO. OF PAGES (INCLUDING COVER):** 30
PHONE NUMBER:	**SENDER'S REFERENCE NUMBER:** IPVBP002C1
RE:	**RECIPIENT'S REFERENCE NUMBER:** 12/157,092

NOTES/COMMENTS:

Transmitted herewith are the following documents for entry into the above-noted file:

Information Disclosure Statement	2 pages
Form 1449	1 page
3 cited references	26 pages

Thank you.

THE INFORMATION CONTAINED IN THIS FACSIMILE MESSAGE IS PRIVILEGED AND CONFIDENTIAL AND IS INTENDED ONLY FOR THE USE OF THE INDIVIDUAL NAMED ABOVE AND OTHERS WHO HAVE BEEN SPECIFICALLY AUTHORIZED TO RECEIVE SUCH. IF THE RECIPIENT IS NOT THE INTENDED RECIPIENT, YOU ARE HEREBY NOTIFIED THAT ANY DISSEMINATION, DISTRIBUTION OR COPYING OF THIS COMMUNICATION IS STRICTLY PROHIBITED. IF YOU HAVE RECEIVED THIS COMMUNICATION IN ERROR, OR IF ANY PROBLEMS OCCUR WITH TRANSMISSION, PLEASE IMMEDIATELY NOTIFY US BY TELEPHONE AT (650)903-9200. THANK YOU.

PAGE 1/30 * RCVD AT 9/30/2009 8:29:19 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/26 * DNIS:2738300 * CSID:16509039800 * DURATION (mm-ss):11-36

In re application of: ORTEGO et al. Attorney Docket No.: IPVBP002C1

Application No.: 12/157,092 Examiner: Unassigned

Filed: June 6, 2008 Group: 2627

Title: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS

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CERTIFICATE OF FACSIMILE

I hereby certify that this correspondence is being transmitted by facsimile to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on September 30, 2009.

Signed: Patricia Tate

Printed Name: Patricia Tate

INFORMATION DISCLOSURE STATEMENT
37 CFR §§1.56 AND 1.97(b)

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

Dear Sir:

The references listed in the attached PTO Form 1449, copies of which are attached, may be material to examination of the above-identified patent application. Applicants submit these references in compliance with their duty of disclosure pursuant to 37 CFR §§1.56 and 1.97. The Examiner is requested to make these references of official record in this application.

This Information Disclosure Statement is not to be construed as a representation that a search has been made, that additional information material to the examination of this application does not exist, or that these references indeed constitute prior art.

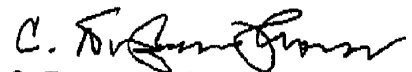
This Information Disclosure Statement is: (i) filed within three (3) months of the filing date of the above-referenced application, (ii) believed to be filed before the mailing date of a first Office Action on the merits, or (iii) believed to be filed before the mailing of a first Office Action after the filing of a Request for Continued Examination under §1.114.

PAGE 2/30 * RCVD AT 9/30/2009 8:29:19 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/26 * DNIS:2738300 * CSID:16509039800 * DURATION (mm-ss):11-36

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CENTRAL FAX CENTER
SEP 30 2009

Accordingly, it is believed that no fees are due in connection with the filing of this Information Disclosure Statement. However, if it is determined that any fees are due, the Commissioner is hereby authorized to charge such fees to Deposit Account 50-3874 (Order No. IPVBP002C1).

Respectfully submitted,



C. Douglass Thomas
Registration No. 32,947

5150 El Camino Real,
Building A, Ste. 22
Los Altos, CA 94022

PAGE 3/30 * RCVD AT 9/30/2009 8:29:19 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/26 * DNIS:2738300 * CSID:16509039800 * DURATION (mm-ss):11-36

OPAP FEB 03 2010 PATENT & TRADEMARK OFFICE

Form 1449 (Modified)	Atty. Docket No.	IPVBP002C1
	Application No.:	12/157,092
Information Disclosure	Applicant	CHEUNG et al.
Statement By Applicant	Filing Date	June 6, 2008
	Group	2627
(Use Several Sheets if Necessary)		Page 1 of 1

U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	1.						
	2.						

Foreign Documents

							Translation	
Init.		Document No.	Date	Country	Class	Subclass	Yes	No

Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)

	A	Aoki, K. et al., "Self-demodulation of a plane-wave--Study on primary wave modulation for wideband signal transmission, " J. Acoust. Soc. Jpn., pp. 349-356, 1984 (with English abstract).
	B	Blackstock, David T., "Audio Application of the Parametric Array," J. Acoust. Soc. Am, Vol. 102, No. 5, Pt. 2, November 1997, pg. 3106.
	C	Davy, B. A., "Acoustic Self-demodulation of Pre-distorted Pulsed Carriers," Masters Thesis, University of Texas Austin, 1972, title page, pages i - ix, and 1 -57.
	D	Kamakura, T. et al, "Developments of Parametric Loudspeaker for Practical Use", Proceedings of the 10th International Symposium on Nonlinear Acoustics, pp. 147-150, 1984.
	E	Kim, W. et al, "Audio Application of the Parametric Array--Implementation through a Numerical Model," presented at the 113th Convention of the Audio Engineering Society (AES), paper 5652, October 2002, pp. 1-16.
	F	"The Cookie-Size Concert Hall," Business Week, December 2, 1996, 5 pages.
	G	
	H	
	I	
	J	
	K	
	L	
	M	

Examiner	Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

OPAP IAP4 FEB 03 2010 PATENT & TRADEMARK OFFICE

IFW

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: CHEUNG et al. | Attorney Docket No.: IPVBP002C1

Application No.: 12/157,092 | Examiner: Unassigned

Filed: June 6, 2008 | Group: 2627

Title: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the U.S. Postal Service with sufficient postage as first-class mail on January 29, 2010, in an envelope addressed to the Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450.

Signed: Pat Tate

Pat Tate

INFORMATION DISCLOSURE STATEMENT 37 CFR §§1.56 AND 1.97(b)

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

Dear Sir:

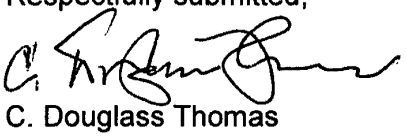
The references listed in the attached PTO Form 1449, copies of which non-U.S. patents are attached, may be material to examination of the above-identified patent application. Applicants submit these references in compliance with their duty of disclosure pursuant to 37 CFR §§1.56 and 1.97. The Examiner is requested to make these references of official record in this application.

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Accordingly, it is believed that no fees are due in connection with the filing of this Information Disclosure Statement. However, if it is determined that any fees are due, the Commissioner is hereby authorized to charge such fees to Deposit Account 50-3874 (Order No. IPVBP002C1).

Respectfully submitted,



C. Douglass Thomas
Registration No. 32,947

5150 El Camino Real,
Building A, Ste. 22
Los Altos, CA 94022

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Form 1449 (Modified)	Atty. Docket No.	IPVBP002C1
	Application No.:	12/157,092
Information Disclosure Statement By Applicant	Applicant	CHEUNG et al.
	Filing Date	June 6, 2008
	Group	2627
(Use Several Sheets if Necessary)		Page 1 of 1

U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	1.	6,041,657	Mar. -00	Sutherland			
	2.						
	3.						
	4.						
	5.						
	6.						
	7.						
	8.						
	9.						
	10.						

Foreign Documents

Init.		Document No.	Date	Country	Class	Subclass	Translation Yes	Translation No

Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)

	A	Third Office Action re: CN200480010386.8 Chinese Patent Office, Jan. 22, 2010, 9 pages.
	B	Restriction Requirement for US Application No. 10/826,527, dated March 22, 2007.
	C	Office Action for US Application No. 10/826,527, dated June 15, 2007.
	D	Notice of Allowance for US Application No. 10/826,527, dated March 24, 2008.
	E	
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Examiner	Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

FAX

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TO:	FROM:
Commissioner for Patents, Mail Stop:	C. Douglass Thomas Ph: 650-903-9200, Fax: 650-903-9800
COMPANY: United States Patent Office	**DATE:** 10/28/2010
FAX NUMBER: 571-273-8300	**NO. OF PAGES (INCLUDING COVER):** 13
PHONE NUMBER:	**SENDER'S REFERENCE NUMBER:** IPVBP002C1
RE:	**RECIPIENT'S REFERENCE NUMBER:** 12/157,092

NOTES/COMMENTS:

Transmitted herewith are the following documents for entry into the above-noted file:

Information Disclosure Statement	2 pages
PTO-Form 1449	1 page
Copy of Non-US Cited Reference (Third Office Action re: CN200480010388.8)	9 pages

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PAGE 1/13 * RCVD AT 10/28/2010 8:14:50 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-5/31 * DNIS:2738300 * CSID:650 903 9800 * DURATION (mm-ss):02-28

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: CHEUNG et al.	Attorney Docket No.: IPVBP002C1
Application No.: 12/157,092	Examiner: Unassigned
Filed: June 6, 2008	Group: 2627

Title: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS

CERTIFICATE OF FACSIMILE

I hereby certify that this correspondence is being transmitted by facsimile to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on October 28, 2010.

Signed: _____
Printed Name: Angela D. Nijim

INFORMATION DISCLOSURE STATEMENT
37 CFR §§1.56 AND 1.97(b)

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

Dear Sir:

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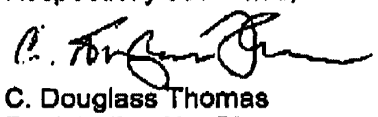
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PLUS Search Results for S/N 12157092, Searched Wed Nov 24 15:56:51 EST 2010

The Patent Linguistics Utility System (PLUS) is a USPTO automated search system for U.S. Patents from 1971 to the present PLUS is a query-by-example search system which produces a list of patents that are most closely related linguistically to the application searched. This search was prepared by the staff of the Scientific and Technical Information Center, SIRA.

5966639 99	5710820 96	4301809 95
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PLUS Search Results for S/N 12157092, Searched Wed Nov 24 15:58:14 EST 2010

The Patent Linguistics Utility System (PLUS) is a USPTO automated search system for U.S. Patents from 1971 to the present PLUS is a query-by-example search system which produces a list of patents that are most closely related linguistically to the application searched. This search was prepared by the staff of the Scientific and Technical Information Center, SIRA.

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Office Action Summary	Application No.	Applicant(s)
	12/157,092	CHEUNG ET AL.
	Examiner	**Art Unit**
	PHYLESHA DABNEY	2614

-- 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 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, 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 *06 June 2008*.

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

3)☐ 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

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

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

Application Papers

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

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

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

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

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

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).

a)☐ All b)☐ Some * c)☐ None of:

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)	4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) ☐ Notice of Informal Patent Application
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.	6) ☐ Other: _____.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/157,092	06/06/2008	Kwok Wai Cheung	IPVBP002C1	6143

34071 7590 08/03/2011

IPVENTURE, INC.
5150 EL CAMINO REAL
SUITE A-22
LOS ALTOS, CA 94022

EXAMINER	
DABNEY, PHYLESHA LARVINIA	
ART UNIT	**PAPER NUMBER**
2614	

MAIL DATE	DELIVERY MODE
08/03/2011	PAPER

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

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

DETAILED ACTION

This action is in response to the Application received on 6 June 2008 in which claims **1-22** are pending.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims **1-22** are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims **1-23** of U.S. Patent No. 7,388,962. Although the conflicting claims are not identical, they are not patentably distinct from each other because the limitations of the claims in the patent application are broader than the scope of the claims in the present application. A comparison of claim 1(instant application) and claim 1 (Cheung et al, 7388962, as suggested by claims 1, 2, 5-6, 16, 21) is shown below:

The instant application teaches a hearing enhancement system for a user, comprising: an audio system configured to receive input signals for broadcasting, and configured to up-convert the received input signals into up-converted signals to be wirelessly transmitted (Cheung '962; claim 21, wherein it is stated the wherein the another instrument is a …speaker …, and wherein audio signals are accessed from another instrument through a wireless connection); a wireless receiver configured to wirelessly receive the up-converted signals (Cheung '962; claim 16, wherein it is stated the system can also access audio signals from another instrument through a wire or a wireless connection); a down-converter configured to down-convert the received up-converted signals into down-converted signals; a modifier configured to modify the down-converted signals into modified signals based on at least one hearing characteristic of the user to enhance the hearing of the user (Cheung '962; claim 1, wherein it is stated portion of the output audio signals have a higher power to enhance he hearing of the user); and a speaker configured to generate audio output signals from the modified

signals for the user (Cheung '962; claim 1, wherein it is stated the directional speaker is configured to be spaced apart from at least one of the ears of the user so that at least a portion of the ultrasonic signals is transformed into output audio signals outside the at least one of the cars of the user to be received by the at least one of the ears of the user.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHYLESHA DABNEY whose telephone number is (571)272-7494. The examiner can normally be reached on Monday through Wednesday and Friday 9:00-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DaVetta Goins can be reached on 571-272-2957. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any response to this action should be mailed to:
Commissioner of Patents and Trademarks
P O Box 1450
Alexandria, VA 22313-1450

Or faxed to:
(703) 273-8300, for formal communications intended for entry and for informal or draft communications, please label "Proposed" or "Draft" when submitting an informal amendment.

Hand-delivered responses should be brought to:
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

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.

July 31, 2011

/PHYLESHA DABNEY/
Examiner, Art Unit 2614

/Olisa Anwah/
Primary Examiner, Art Unit 2614

Notice of References Cited	Application/Control No.	Applicant(s)/Patent Under Reexamination	
	Examiner	Art Unit	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-7,388,962	06-2008	Cheung et al.	381/381
*	B	US-2004/0208325	10-2004	Cheung et al.	381/079
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

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

NON-PATENT DOCUMENTS

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

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

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12157092	CHEUNG ET AL.
	Examiner	**Art Unit**
	PHYLESHA DABNEY	2614

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

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

CLAIM		DATE								
Final	Original	08/01/2011								
	1	✓								
	2	✓								
	3	✓								
	4	✓								
	5	✓								
	6	✓								
	7	✓								
	8	✓								
	9	✓								
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	17	✓								
	18	✓								
	19	✓								
	20	✓								
	21	✓								
	22	✓								

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12157092	CHEUNG ET AL.
	Examiner	Art Unit
	PHYLESHA DABNEY	2614

SEARCHED			
Class	Subclass	Date	Examiner
455	575.6, 550.1	5/20/11	pld
381	312, 316, 320, 77, 79	5/20/11	pld

SEARCH NOTES		
Search Notes	Date	Examiner
Plus and Claims search	5/20/11	pld
Text search	5/20/11	pld
Review continuation: 10826527 and related cases: 108265529, 11893835, 10826528	7/30/11	pld
Review IDS	7/31/11	pld
*check issue classification for 381/77 or 455/575.6		

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	91	("20010007591" | "20010038698" | "20010055397" | "20020005777" | "20020008718" | "20020012441" | "20020048382" | "20020048385" | "20020054689" | "20020090099" | "20020090103" | "20020141599" | "20020149705" | "20020183648" | "20020191807" | "20030009248" | "20030026439" | "20030035552" | "20030091200" | "20030092377" | "20030118198" | "20030156495" | "20030174242" | "20030182104" | "20040052387" | "20040114772" | "20040202339" | "20040204168" | "20070287516" | "3942139" | "3974335" | "4006308" | "4128738" | "4292679" | "4476571" | "4622440" | "4625318" | "4823908" | "4955729" | "5313663" | "5321758" | "5357578" | "5450494" | "5481616" | "5495534" | "5526411" | "5572575" | "5588041" | "5648824" | "5666424" | "5764595" | "5764782" | "5777665" | "5793875" | "5802190" | "5819183" | "5828768" | "5835732" | "5870484" | "5943430" | "6011855" | "6041657" | "6058315" | "6086541" | "6151398" | "6163711" | "6169813" | "6243472" | "6259731" | "6275596" | "6279946" | "6322521" | "6363139" | "6445804" | "6453045" | "6477258" | "6484040" | "6496205" | "6512826" | "6535612" | "6556687" | "6584205" | "6591085" | "6594367" | "6631196" | "6643377" | "6650755" | "6671494" | "6895261" | "7013009" | "7269452").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2011/08/01 08:22
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S4	817	(speaker transducer receiver) near10 (directional) and hearing and (broadcast television radio stereo "cd player" phone)	US-PGPUB; USPAT	OR	ON	2011/05/20 15:54
S5	71	(speaker transducer receiver) near10 (directional) and hearing and (broadcast television radio stereo "cd player" phone) and wifi	US-PGPUB; USPAT	OR	ON	2011/05/20 15:54
S6	57	(speaker transducer receiver) near10 (directional) and hearing and (broadcast television radio stereo "cd player" phone)	US-PGPUB; USPAT	OR	ON	2011/05/20 15:56

		and wifi and ultrasonic				
S7	43	(speaker transducer receiver) near10 (directional) and hearing and (broadcast television radio stereo "cd player" phone) and wifi and ultrasonic near10 (speaker transducer receiver)	US-PGPUB; USPAT	OR	ON	2011/05/20 15:56
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		$ or US-5687222-$ or US-5710820-$ or US-5712917-$ or US-5721783-$ or US-5754666-$).did. or (US-5824022-$ or US-5842115-$ or US-5852806-$ or US-5892536-$ or US-5916302-$ or US-5918203-$ or US-5926553-$ or US-5986692-$ or US-6021386-$ or US-6041295-$ or US-6055023-$ or US-6078725-$ or US-6078670-$ or US-6078675-$ or US-6088064-$ or US-6097442-$ or US-6115478-$ or US-6136277-$ or US-6163646-$ or US-6163647-$ or US-6167138-$ or US-6233336-$ or US-7009533-$ or US-7071852-$ or US-7088276-$ or US-7292164-$ or US-7394410-$).did. or (US-7649484-$ or US-3571529-$ or US-3898382-$ or US-3872470-$ or US-3819875-$ or US-4020298-$ or US-4056741-$ or US-4060701-$ or US-4061972-$ or US-4063048-$ or US-4139742-$ or US-4266243-$ or US-4267410-$ or US-4268721-$ or US-4275744-$ or US-4282606-$ or US-4284856-$ or US-4301809-$ or US-4307385-$ or US-RE31031-$ or US-4309575-$ or US-4309658-$ or US-4310315-$ or US-4315502-$ or US-4327252-$ or US-4338489-$ or US-4339658-$).did. or (US-4347404-$ or US-4350951-$ or US-4354064-$ or US-4356349-$ or US-4357497-$ or US-4367374-$ or US-4378466-$ or US-4381488-$ or US-4384173-$ or US-4392233-$ or US-4392019-$ or US-4393275-$ or US-4400590-$ or US-4418243-$ or US-4419995-$ or US-4426555-$ or US-4458113-$ or US-4461025-$ or US-4472065-$ or US-4484345-$ or US-4488182-$ or US-4490843-$ or US-4491980-$ or US-4495384-$ or US-4495637-$ or US-4506113-$ or US-4516257-$).did. or (US-4519027-$ or US-4534054-$ or US-4536888-$ or US-4539439-$ or US-4555795-$ or US-4558184-$ or US-4560833-$ or US-4567607-$ or US-4577641-$ or US-4588992-$ or US-4590531-$ or US-4594730-$ or US-4596041-$ or US-4598417-$ or US-4611598-$ or US-4617913-$ or US-4620068-$ or US-4627092-$ or US-4757541-$ or US-4769841-$ or US-4773088-$ or US-4777474-$ or US-4783818-$ or US-4784115-$ or US-4790018-$ or US-4791672-$ or US-4792991-$).did. or (US-4797673-$ or US-4803732-$ or US-4809093-$ or US-4809329-$ or US-4809554-$ or US-4813419-$ or US-4845755-$ or US-4847763-$ or US-4847825-$ or US-4850023-$ or US-4857999-$ or US-4864624-$ or US-4866770-$ or US-4873520-$ or US-4877027-$ or US-4879738-$ or US-4882761-$ or US-4882762-$ or US-4887299-$ or US-4888810-$ or US-4904982-$ or US-4916742-$ or US-4918736-$ or US-4928311-$ or US-4928568-$ or US-4932880-$ or US-4942607-$).did. or (US-4951002-$ or US-4959867-$ or US-4961230-$ or US-4961227-$ or US-4964304-$ or US-4964738-$ or US-4972487-$ or US-4975967-$ or US-4977609-$ or US-5001763-$ or US-5003986-$ or US-5008954-$ or US-5010341-$ or US-5010575-$ or US-5012452-$ or US-5014318-$ or US-5014319-				

		$ or US-5020141-$ or US-5020155-$ or US-5021878-$ or US-5027410-$ or US-5069210-$ or US-5046101-$ or US-5042084-$ or US-5034983-$ or US-5033999-$ or US-5033086-$).did. or (US-5185803-$ or US-5187373-$ or US-5195895-$ or US-5198893-$ or US-5199078-$ or US-5204677-$ or US-5208867-$ or US-5212551-$ or US-5212829-$ or US-5226000-$ or US-5233663-$ or US-5237418-$ or US-5246463-$ or US-5251253-$ or US-5255320-$ or US-5259032-$ or US-5260980-$ or US-5267305-$ or US-5271397-$ or US-5274740-$ or US-5278553-$ or US-5278912-$ or US-5289543-$ or US-5291785-$ or US-5295191-$ or US-5301205-$ or US-5303346-$).did. or (US-5307793-$ or US-5325872-$ or US-5327506-$ or US-5329556-$ or US-5333153-$ or US-5337364-$ or US-5361306-$ or US-5365214-$ or US-5369440-$ or US-5369710-$ or US-5375189-$ or US-5381143-$ or US-5388992-$ or US-5394475-$ or US-5396651-$ or US-5398070-$ or US-5398278-$ or US-5400433-$ or US-5404115-$ or US-5404407-$ or US-5412731-$ or US-5416847-$ or US-5422602-$ or US-5425104-$ or US-5426719-$ or US-5428998-$ or US-5434922-$).did. or (US-5435185-$ or US-5436975-$ or US-5445026-$ or US-5448620-$ or US-5448644-$ or US-5448645-$ or US-5450070-$ or US-5450490-$ or US-5452361-$ or US-5454011-$ or US-5457731-$ or US-5463599-$ or US-5465291-$ or US-5473727-$ or US-5479168-$ or US-5479522-$ or US-5487102-$ or US-5488668-$ or US-5490166-$ or US-5498226-$ or US-5502789-$ or US-5510901-$ or US-5511128-$ or US-5513384-$ or US-5515395-$ or US-5519443-$ or US-5521981-$).did. or (US-5522865-$ or US-5523794-$ or US-5523982-$).did.				
S14	40	wifi and hearing near3 (characteristic profile transfer data)	US-PGPUB; USPAT; USOCR	OR	OFF	2011/07/31 20:12
S15	14	wifi and hearing near3 (characteristic profile transfer data) and (ultrasonic direct$5) near3 ($4speaker transducer)	US-PGPUB; USPAT; USOCR	OR	OFF	2011/07/31 20:13
S16	91	("20010007591" | "20010038698" | "20010055397" | "20020005777" | "20020008718" | "20020012441" | "20020048382" | "20020048385" | "20020054689" | "20020090099" | "20020090103" | "20020141599" | "20020149705" | "20020183648" | "20020191807" | "20030009248" | "20030026439" | "20030035552" | "20030091200" | "20030092377" | "20030118198" | "20030156495" | "20030174242" | "20030182104" | "20040052387" | "20040114772" | "20040202339" | "20040204168" | "20070287516" | "3942139" | "3974335" | "4006308" | "4128738" | "4292679" |	US-PGPUB; USPAT; USOCR	OR	OFF	2011/07/31 20:51

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		$).did. or (US-5824022-$ or US-5842115-$ or US-5852806-$ or US-5892536-$ or US-5916302-$ or US-5918203-$ or US-5926553-$ or US-5986692-$ or US-6021386-$ or US-6041295-$ or US-6055023-$ or US-6078725-$ or US-6078670-$ or US-6078675-$ or US-6088064-$ or US-6097442-$ or US-6115478-$ or US-6136277-$ or US-6163646-$ or US-6163647-$ or US-6167138-$ or US-6233336-$ or US-7009533-$ or US-7071852-$ or US-7088276-$ or US-7292164-$ or US-7394410-$).did. or (US-7649484-$ or US-3571529-$ or US-3898382-$ or US-3872470-$ or US-3819875-$ or US-4020298-$ or US-4056741-$ or US-4060701-$ or US-4061972-$ or US-4063048-$ or US-4139742-$ or US-4266243-$ or US-4267410-$ or US-4268721-$ or US-4275744-$ or US-4282606-$ or US-4284856-$ or US-4301809-$ or US-4307385-$ or US-RE31031-$ or US-4309575-$ or US-4309658-$ or US-4310315-$ or US-4315502-$ or US-4327252-$ or US-4338489-$ or US-4339658-$).did. or (US-4347404-$ or US-4350951-$ or US-4354064-$ or US-4356349-$ or US-4357497-$ or US-4367374-$ or US-4378466-$ or US-4381488-$ or US-4384173-$ or US-4392233-$ or US-4392019-$ or US-4393275-$ or US-4400590-$ or US-4418243-$ or US-4419995-$ or US-4426555-$ or US-4458113-$ or US-4461025-$ or US-4472065-$ or US-4484345-$ or US-4488182-$ or US-4490843-$ or US-4491980-$ or US-4495384-$ or US-4495637-$ or US-4506113-$ or US-4516257-$).did. or (US-4519027-$ or US-4534054-$ or US-4536888-$ or US-4539439-$ or US-4555795-$ or US-4558184-$ or US-4560833-$ or US-4567607-$ or US-4577641-$ or US-4588992-$ or US-4590531-$ or US-4594730-$ or US-4596041-$ or US-4598417-$ or US-4611598-$ or US-4617913-$ or US-4620068-$ or US-4627092-$ or US-4757541-$ or US-4769841-$ or US-4773088-$ or US-4777474-$ or US-4783818-$ or US-4784115-$ or US-4790018-$ or US-4791672-$ or US-4792991-$).did. or (US-4797673-$ or US-4803732-$ or US-4809093-$ or US-4809329-$ or US-4809554-$ or US-4813419-$ or US-4845755-$ or US-4847763-$ or US-4847825-$ or US-4850023-$ or US-4857999-$ or US-4864624-$ or US-4866770-$ or US-4873520-$ or US-4877027-$ or US-4879738-$ or US-4882761-$ or US-4882762-$ or US-4887299-$ or US-4888810-$ or US-4904982-$ or US-4916742-$ or US-4918736-$ or US-4928311-$ or US-4928568-$ or US-4932880-$ or US-4942607-$).did. or (US-4951002-$ or US-4959867-$ or US-4961230-$ or US-4961227-$ or US-4964304-$ or US-4964738-$ or US-4972487-$ or US-4975967-$ or US-4977609-$ or US-5001763-$ or US-5003986-$ or US-5008954-$ or US-5010341-$ or US-5010575-$ or US-5012452-$ or US-5014318-$ or US-5014319-$ or US-5020141-$ or US-5020155-$ or US-5021878-$ or US-5027410-$ or US-5069210-				

		$ or US-5046101-$ or US-5042084-$ or US-5034983-$ or US-5033999-$ or US-5033086-$).did. or (US-5185803-$ or US-5187373-$ or US-5195895-$ or US-5198893-$ or US-5199078-$ or US-5204677-$ or US-5208867-$ or US-5212551-$ or US-5212829-$ or US-5226000-$ or US-5233663-$ or US-5237418-$ or US-5246463-$ or US-5251253-$ or US-5255320-$ or US-5259032-$ or US-5260980-$ or US-5267305-$ or US-5271397-$ or US-5274740-$ or US-5278553-$ or US-5278912-$ or US-5289543-$ or US-5291785-$ or US-5295191-$ or US-5301205-$ or US-5303346-$).did. or (US-5307793-$ or US-5325872-$ or US-5327506-$ or US-5329556-$ or US-5333153-$ or US-5337364-$ or US-5361306-$ or US-5365214-$ or US-5369440-$ or US-5369710-$ or US-5375189-$ or US-5381143-$ or US-5388992-$ or US-5394475-$ or US-5396651-$ or US-5398070-$ or US-5398278-$ or US-5400433-$ or US-5404115-$ or US-5404407-$ or US-5412731-$ or US-5416847-$ or US-5422602-$ or US-5425104-$ or US-5426719-$ or US-5428998-$ or US-5434922-$).did. or (US-5435185-$ or US-5436975-$ or US-5445026-$ or US-5448620-$ or US-5448644-$ or US-5448645-$ or US-5450070-$ or US-5450490-$ or US-5452361-$ or US-5454011-$ or US-5457731-$ or US-5463599-$ or US-5465291-$ or US-5473727-$ or US-5479168-$ or US-5479522-$ or US-5487102-$ or US-5488668-$ or US-5490166-$ or US-5498226-$ or US-5502789-$ or US-5510901-$ or US-5511128-$ or US-5513384-$ or US-5515395-$ or US-5519443-$ or US-5521981-$).did. or (US-5522865-$ or US-5523794-$ or US-5523982-$).did.				
S19	5	(S16 S17 S18) and wifi and hearing near3 (characteristic profile transfer data) and (ultrasonic direct$5) near3 ($4speaker transducer)	US-PGPUB; USPAT; USOCR	OR	OFF	2011/07/31 20:51
S20	6	(S16 S17 S18) and wifi and (ultrasonic direct$5) near3 ($4speaker transducer)	US-PGPUB; USPAT; USOCR	OR	OFF	2011/07/31 20:56
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S23	48	dabney-p$.xa. and @pd>"20100101"	USPAT	OR	OFF	2011/07/31 23:12

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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /P.D./

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Form 1449 (Modified)	Atty. Docket No.	IPVBP002C1
	Application No.:	12/157,092
Information Disclosure Statement By Applicant	Applicant	CHEUNG
	Filing Date	June 6, 2008
	Group	2627
(Use Several Sheets if Necessary)		Page 1 of 1

U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	1.	4,292,679 A	Sept.-81	Kondo et al.			
	2.	4,476,571 A	Oct.-84	Tokumo et al			
	3.	4,625,318	Nov.-86	Snyder			
	4.	5,662,157	Oct.-97	Asmussen et al.			
	5.	6,259,731 B1	Jul.-01	Dent et al.			
	6.	6,484,040 B1	Nov.-02	Wang			
	7.	6,488,970 B2	Dec.-02	Colmenarez et al.			
	8.	6,591,085 B1	Jul.-03	Grady			
	9.	6,671,494 B1	Dec.-03	James			
	10.	2003/0158495 A1	Aug.-03	Haase et al.			
	11.	2004/0114772 A1	Jun.-04	Zlotnick			

Foreign Documents

Init.		Document No.	Date	Country	Class	Subclass	Abstract Translation Yes	No
		JP 01109898A	Apr-89	Japan			X	

Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)

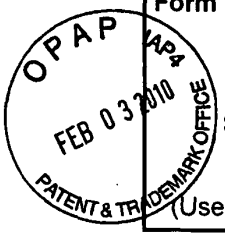
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Examiner	/Phylesha Dabney/	Date Considered	08/01/2011

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

PAGE 4/10 * RCVD AT 1/21/2009 8:00:37 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-6/39 * DNIS:2738300 * CSID:650 903 9800 * DURATION (mm-ss):01-46

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /P.D./



Form 1449 (Modified)	Atty. Docket No.	IPVBP002C1
	Application No.:	12/157,092
Information Disclosure	Applicant	CHEUNG et al.
Statement By Applicant	Filing Date	June 6, 2008
	Group	2627
(Use Several Sheets if Necessary)		Page 1 of 1

U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	1.						
	2.						

Foreign Documents

							Translation	
Init.		Document No.	Date	Country	Class	Subclass	Yes	No

Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)

	A	Aoki, K. et al., "Self-demodulation of a plane-wave--Study on primary wave modulation for wideband signal transmission, " J. Acoust. Soc. Jpn., pp. 349-356, 1984 (with English abstract).
	B	Blackstock, David T., "Audio Application of the Parametric Array," J. Acoust. Soc. Am, Vol. 102, No. 5, Pt. 2, November 1997, pg. 3106.
	C	Davy, B. A., "Acoustic Self-demodulation of Pre-distorted Pulsed Carriers," Masters Thesis, University of Texas Austin, 1972, title page, pages i - ix, and 1 -57.
	D	Kamakura, T. et al, "Developments of Parametric Loudspeaker for Practical Use", Proceedings of the 10th International Symposium on Nonlinear Acoustics, pp. 147-150, 1984.
	E	Kim, W. et al, "Audio Application of the Parametric Array--Implementation through a Numerical Model," presented at the 113th Convention of the Audio Engineering Society (AES), paper 5652, October 2002, pp. 1-16.
	F	"The Cookie-Size Concert Hall," Business Week, December 2, 1996, 5 pages.
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Examiner	/Phylesha Dabney/	Date Considered	08/01/2011

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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Form 1449 (Modified)	Atty. Docket No.	IPVBP002C1
	Application No.:	12/157,092
Information Disclosure Statement By Applicant	Applicant	CHEUNG et al.
	Filing Date	June 6, 2008
	Group	2627
(Use Several Sheets if Necessary)		Page 1 of 7

U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	1.	3,942,139	Mar.-76	Cooper et al.			
	2.	3,974,335	Aug.-76	Blackledge			
	3.	4,128,738	Dec.-78	Gallery			
	4.	4,006,308	Feb.-77	Ponsgen			
	5.	4,622,440	Nov.-86	Slavin			
	6.	4,823,908	Apr.-89	Tanaka			
	7.	4,955,729	Sep.-90	Marx			
	8.	5,313,663	May-94	Norris			
	9.	5,321,758	Jun.-94	Charpentier et al.			
	10.	5,357,578	Oct.-94	Taniishi			
	11.	5,450,494	Sept.-95	Okubo et al.			
	12.	5,495,534	Feb.-96	Inanaga et al.			
	13.	5,526,411	Jun.-96	Krieter			
	14.	5,572,575	Nov.-96	Yamamoto et al.			
	15.	5,588,041	Dec.-96	Meyer et al.			
	16.	5,648,824	Jul.-97	Dunn et al.			
	17.	5,666,424	Sep.-97	Fosgate et al.			
	18.	5,764,595	Jun.-98	Power			
	19.	5,764,782	Jun.-98	Hayes			
	20.	5,777,665 A	Jul.-98	McNelley et al.			
	21.	5,793,875	Aug.-98	Lehr et al.			
	22.	5,802,190	Sep.-98	Ferren			
	23.	5,819,183	Oct.-98	Voroba et al.			
	24.	5,828,768	Oct.-98	Eatwell et al.			
	25.	5,835,732	Nov.-98	Kikinis et al.			
	26.	5,870,484	Feb.-99	Greenberger			
	27.	5,943,430	Aug.-99	Saitoh			

Examiner	Date Considered
/Phylesha Dabney/	08/01/2011

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

PAGE 4/10 * RCVD AT 7/22/2008 5:40:34 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/44 * DNIS:2738300 * CSID:650 903 9800 * DURATION (mm-ss):02-32

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /P.D./

Form 1449 (Modified)	Atty. Docket No.	IPVBP002C1
	Application No.:	12/157,092
Information Disclosure Statement By Applicant	Applicant	CHEUNG et al.
	Filing Date	June 6, 2008
	Group	2627
(Use Several Sheets if Necessary)		Page 2 of 7

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Form 1449 (Modified)	Atty. Docket No.	IPVBP002C1
	Application No.:	12/157,092
Information Disclosure Statement By Applicant	Applicant	CHEUNG et al.
	Filing Date	June 6, 2008
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Form 1449 (Modified)	Atty. Docket No.	IPVBP002C1
	Application No.:	12/157,092
Information Disclosure Statement By Applicant	Applicant	CHEUNG et al.
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Form 1449 (Modified)	Atty. Docket No.	IPVBP002C1
	Application No.:	12/157,092
Information Disclosure	Applicant	CHEUNG et al.
Statement By Applicant	Filing Date	June 6, 2008
	Group	2627
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Examiner	Date Considered
/Phylesha Dabney/	08/01/2011

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Form 1449 (Modified)	Atty. Docket No.	IPVBP002C1
	Application No.:	12/157,092
Information Disclosure Statement By Applicant	Applicant	CHEUNG et al.
	Filing Date	June 6, 2008
	Group	2627
(Use Several Sheets if Necessary)		Page 1 of 1

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Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)

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Examiner	/Phylesha Dabney/	Date Considered	08/01/2011

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CONFIRMATION NO. 6143

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
12/157,092	06/06/2008	381	2614	IPVBP002C1

APPLICANTS

Kwok Wai Cheung, Hong Kong, CHINA;
Peter P. Tong, Mountain View, CA;
C. Douglass Thomas, Campbell, CA;

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

This application is a CON of 10/826,527 04/15/2004 PAT 7,388,962
which claims benefit of 60/462,570 04/15/2003
and claims benefit of 60/469,221 05/12/2003
and claims benefit of 60/493,441 08/08/2003

**** FOREIGN APPLICATIONS ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **** ** SMALL ENTITY **
06/20/2008

Foreign Priority claimed	☐ Yes ☑ No	☐ Met after Allowance	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
35 USC 119(a-d) conditions met	☐ Yes ☑ No		CHINA	12	22	2
Verified and Acknowledged	/PHYLESHA L DABNEY/ Examiner's Signature	Initials				

ADDRESS

IPVENTURE, INC.
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SUITE A-22
LOS ALTOS, CA 94022
UNITED STATES

TITLE

Directional hearing enhancement systems

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

BIB (Rev. 05/07).

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: CHEUNG et al.	Attorney Docket No.: IPVBP002C1
Application No.: 12/157,092	Examiner: DABNEY, PHYLESHA LARVINIA
Filed: June 6, 2008	Group: 2614
Title: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS	

AMENDMENT A

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

Dear Sir:

In response to the Office Action dated August 3, 2011, please amend the above-identified patent application as follows:

Amendments to the Specification are reflected on page 2 of this paper.
Amendments to the Claims are reflected in the listing of claims which begins on page 5 of this paper.
Remarks/Arguments begin on page 10 of this paper.

Amendments to the Specification:

Please **AMEND** paragraph [0001] AND [0002] on page 1 of the specification as follows:

--

[0001] This application is a continuation of U. S. Patent Application No. 10/826,527, filed April 15, 2004, and entitled "DIRECTIONAL HEARING ENHANCEMENT SYSTEMS," now U.S. Patent No. 7,388,962, which application claims priority of: (i) U.S. Provisional Patent Application No. 60/462,570, filed April 15, 2003, and entitled "WIRELESS COMMUNICATION SYSTEMS OR DEVICES, HEARING ENHANCEMENT SYSTEMS OR DEVICES, AND METHODS THEREFOR," which is hereby incorporated herein by reference; (ii) U.S. Provisional Patent Application No. 60/469,221, filed May 12, 2003, and entitled "WIRELESS COMMUNICATION SYSTEMS OR DEVICES, HEARING ENHANCEMENT SYSTEMS OR DEVICES, DIRECTIONAL SPEAKER FOR ELECTRONIC DEVICE, PERSONALIZED AUDIO SYSTEMS OR DEVICES, AND METHODS THEREFOR," which is hereby incorporated herein by reference; and (iii) U.S. Provisional Patent Application No. 60/493,441, filed August 8, 2003, and entitled "WIRELESS COMMUNICATION SYSTEMS OR DEVICES, HEARING ENHANCEMENT SYSTEMS OR DEVICES, DIRECTIONAL SPEAKER FOR ELECTRONIC DEVICE, AUDIO SYSTEMS OR DEVICES, WIRELESS AUDIO DELIVERY, AND METHODS THEREFOR," which is hereby incorporated herein by reference.

[0002] This application is also related to: (i) U.S. Patent Application No. 10/826,529, filed April 15, 2004, now U.S. Patent No. 7,269,452, and entitled, "DIRECTIONAL WIRELESS COMMUNICATION SYSTEMS," which is hereby incorporated herein by reference; (ii) U.S. Patent Application No. 10/826,531, filed April 15, 2004, now U.S. Patent 7,801,570, and entitled, "DIRECTIONAL SPEAKER FOR PORTABLE ELECTRONIC DEVICE," which is hereby incorporated herein by reference; (iii) U.S. Patent Application No. 10/826,537,

filed April 15, 2004, and entitled, "METHOD AND APPARATUS FOR LOCALIZED DELIVERY OF AUDIO SOUND FOR ENHANCED PRIVACY," which is hereby incorporated herein by reference; and (iv) U.S. Patent Application No. 10/826,528, filed concurrently, and entitled, "METHOD AND APPARATUS FOR WIRELESS AUDIO DELIVERY," which is hereby incorporated herein by reference.

Please **ADD** paragraphs [0097.1-0097.4] on page 24 of the specification following paragraph [0097], as follows:

[0097.1] One embodiment of the invention includes a mobile telephone 500 with an integrated directional speaker. The mobile telephone is, for example, a cellular phone. The mobile telephone includes a housing that provides an overall body for the mobile telephone. The mobile telephone includes a display. The mobile telephone also includes a plurality of buttons that allow user input of alphanumeric characters or functional requests, and a navigational control that allows directional navigation with respect to the display. To support wireless communications, the mobile telephone also includes an antenna. In addition, the mobile telephone includes a microphone for voice pickup and an ear speaker for audio output. The ear speaker can also be referred to an earpiece.

[0097.2] Additionally, according to the invention, the mobile telephone also includes a directional speaker. The directional speaker provides directional audio sound for the user of the mobile telephone. The directional audio sound produced by the directional speaker allows the user of the mobile telephone to hear the audio sound even though neither of the speaker's ears is proximate to the mobile telephone. However, the directional nature of the directional sound output is towards the user and thus provides privacy by restricting the audio sound to a confined directional area. In other words, bystanders in the vicinity of the user but not within the confined directional area would not be able to directly hear the audio sound produced by the directional speaker. The bystanders might be able to hear a degraded version of the audio sound after it reflects from a

surface. The reflected audio sound, if any, that reaches the bystander would be at a reduced decibel level (e.g., at least a 20 dB reduction) making it difficult for bystanders to hear and understand the audio sound.

[0097.3] Another embodiment of the invention includes a flip-type mobile telephone 510 with an integrated directional speaker. The mobile telephone 510 is, for example, a cellular phone. The mobile telephone 510 is similar to the mobile telephone 500. More particularly, the mobile telephone 510 includes a housing that provides a body for the mobile telephone 510. The mobile telephone 510 includes a display, a plurality of keys, and a navigation control. To support wireless communications, the mobile telephone 510 also includes an antenna. In addition, the mobile telephone 510 includes a microphone for voice pickup and an ear speaker for audio output.

[0097.4] Moreover, according to the invention, the mobile telephone 510 includes a directional speaker. In this embodiment, the directional speaker is provided in a lower region of a lid portion of the housing of the mobile telephone 510. The directional speaker directs audio output to the user of the mobile telephone 510 in a directional manner. The directional nature of the directional sound output is towards the user and thus provides privacy by restricting the audio sound to a confined directional area.

Amendments to the Claims:
The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Original) A hearing enhancement system for a user, comprising:

an audio system configured to receive input signals for broadcasting, and configured to up-convert the received input signals into up-converted signals to be wirelessly transmitted;

a wireless receiver configured to wirelessly receive the up-converted signals;

a down-converter configured to down-convert the received up-converted signals into down-converted signals;

a modifier configured to modify the down-converted signals into modified signals based on at least one hearing characteristic of the user to enhance the hearing of the user; and

a speaker configured to generate audio output signals from the modified signals for the user.

2. (Original) A hearing enhancement system as recited in claim 1, wherein the up-converted signals are in the WiFi frequency band.

3. (Original) A hearing enhancement system as recited in claim 1, wherein the audio system is selected from the list consisting a television, a stereo system, a CD player and a radio.

4. (Original) A hearing enhancement system as recited in claim 1, wherein the audio system is a desktop phone.

5. (Original) A hearing enhancement system as recited in claim 1, wherein the audio system receives the input signals from a microphone.

6. (Original) A hearing enhancement system as recited in claim 1, wherein the down-converted signals are modified such that a portion of the audio output signals has an increased power to enhance the hearing of the user.

7. (Original) A hearing enhancement system as recited in claim 6,

wherein the portion with increased power is selected based on frequency, and

wherein a higher frequency portion has increased power.

8. (Original) A hearing enhancement system as recited in claim 1,

wherein the at least one hearing characteristic of the user is determined via calibrating the user's hearing,

wherein the power of the audio output signals can be changed as a function of frequency, and

wherein the user can change the power of the audio output signals.

9. (Original) A hearing enhancement system as recited in claim 1, wherein the speaker is configured to generate ultrasonic signals, with at least a portion of the ultrasonic signals transformed into the audio output signals in air.

10. (Original) A hearing enhancement apparatus for a user, the apparatus being wirelessly coupled to an audio system, which is configured to receive input signals for broadcasting, and configured to up-convert the received input signals into up-converted signals to be wirelessly transmitted, the apparatus comprising:

a wireless receiver configured to wirelessly receive the up-converted signals;

a down-converter configured to down-convert the received up-converted signals into down-converted signals;

a modifier configured to modify the down-converted signals into modified signals based on at least one hearing characteristic of the user to enhance the hearing of the user; and

a speaker configured to generate audio output signals from the modified signals for the user.

11. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the down-converted signals are modified such that a portion of the audio output signals has an increased power to enhance the hearing of the user.

12. (Original) A hearing enhancement apparatus as recited in claim 11,

wherein the portion with the increased power is selected based on frequency,

wherein a higher frequency portion has increased power,

wherein the at least one hearing characteristic of the user is determined via calibrating the user's hearing,

wherein the power of the audio output signals can be changed as a function of frequency, and

wherein the user can change the power of the audio output signals.

13. (Original) A hearing enhancement apparatus as recited in claim 12, wherein the down-converted signals are further modified based on the noise level of the environment of the apparatus.

14. (Original) A hearing enhancement apparatus as recited in claim 13, wherein the apparatus is also configured to operate as a phone.

15. (Original) A hearing enhancement apparatus as recited in claim 11,

wherein the portion with increased power is selected based on frequency, and

wherein a higher frequency portion has increased power.

16. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the up-converted signals are in the WiFi frequency band.

17. (Original) A hearing enhancement apparatus as recited in claim 10,

wherein the at least one hearing characteristic of the user is determined via calibrating the user's hearing,

wherein the power of the audio output signals can be changed as a function of frequency, and

wherein the user can change the power of the audio output signals.

18. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the speaker is configured to generate ultrasonic signals, with at least a portion of the ultrasonic signals transformed into the audio output signals in air.

19. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the down-converted signals are further modified based on the noise level of the environment of the apparatus.

20. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the apparatus is also configured to operate as a phone.

21. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the at least one hearing characteristic of the user is wirelessly received and stored in the hearing enhancement apparatus.

22. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the at least one hearing characteristic of the user is retrieved from a portable media storage device while being physically in contact with the apparatus.

23. (New) A hearing enhancement system as recited in claim 1, wherein the speaker is a directional speaker.

24. (New) A hearing enhancement system as recited in claim 1, wherein the speaker is an ear speaker.

25. (New) A hearing enhancement system as recited in claim 1, wherein the speaker is in a headset.

26. (New) A hearing enhancement apparatus as recited in claim 10, wherein the speaker is a directional speaker.

27. (New) A hearing enhancement apparatus as recited in claim 10, wherein the speaker is an ear speaker.

28. (New) A hearing enhancement apparatus as recited in claim 10, wherein the speaker is in a headset.

REMARKS

Applicants previously presented claims 1 through 22 for examination. In the above-identified Office Action, the Examiner has rejected all the claims. By this amendment, Applicants have added new claims 23-28. Accordingly, claims 1-28 remain pending. Applicants respectfully request that the Examiner reconsider the application in light of the amendments and the remarks expressed herein.

Specification amendment

Applicants have added paragraphs 97.1 to 97.4 to the specification. They are substantially the same as col. 4, lines 7-62, of U.S. Patent No. 7,801,570, with U.S. Patent Application No. 10/826,531, entitled, "DIRECTIONAL SPEAKER FOR PORTABLE ELECTRONIC DEVICE," which was previously incorporated by reference. Thus no new matter was introduced.

Double patenting

Claims 1-22 were rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-23 of U.S. Patent No. 7,388,962. Applicants respectfully disagree. However, to expedite prosecution, Applicants have submitted a terminal disclaimer to obviate the rejection. Accordingly, it is respectfully requested that the Examiner reconsider and withdraw the rejection on the ground of double patenting.

Summary

In view of the foregoing, it is respectfully requested that all outstanding rejections be reconsidered and withdrawn. Reconsideration of the application and an early Notice of Allowance are earnestly solicited.

If there are any issues remaining which the Examiner believes could be resolved through either a Supplemental Response or an Examiner's Amendment,

the Examiner is respectfully requested to contact the undersigned representative at the telephone number listed below.

Respectfully submitted,

5150 El Camino Real
Building A, Suite 22
Los Altos, CA 94022
(650) 903-9200 ext 102

By: /Peter P. Tong/
Peter P. Tong
Registration No.: 35,757

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT

In re application of: CHEUNG et al.	Attorney Docket No.: IPVBP002C1
Application No.: 12/157,092	Examiner: DABNEY, PHYLESHA LARVINIA
Filed: June 6, 2008	Group: 2614
Title: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS	

INFORMATION DISCLOSURE STATEMENT BEFORE FINAL ACTION OR NOTICE OF ALLOWANCE (37 CFR §§ 1.56 AND 1.97(c))

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

Dear Sir:

The references listed in the attached PTO Form 1449, copies of which non-U.S. patents are attached, may be material to examination of the above-identified patent application. Applicants submit this reference in compliance with their duty of disclosure pursuant to 37 CFR §§1.56 and 1.97. The Examiner is requested to make this citation of official record in this application.

This Information Disclosure Statement is not to be construed as a representation that a search has been made, that additional information material to the examination of this application does not exist, or that this reference indeed constitutes prior art.

This Information Disclosure Statement is being filed after the mailing date of the first Office Action on the merits, or after three months of the filing date of this application, whichever event occurred last, but it is believed before the mailing date of either: (i) a final action under §1.113 or (ii) a notice of allowance under §1.311, whichever occurs first.

Accompanying this Information Disclosure Statement is

☐ a statement as specified in 37 CFR 1.97(e); or

☒ the fee set forth in 37 CFR 1.17(p).

Electronic Fee in payment of the Information Disclosure Statement Fee of $180.00 is provided herewith. If it is determined that any additional fees are due, the Commissioner is hereby authorized to charge such fees to Deposit Account 50-3874 (Order No. IPVBP002C1).

Respectfully submitted,

/Peter P. Tong/

Peter P. Tong
Registration No: 35,757

5150 El Camino Real
Building A, Suite 22
Los Altos, CA 94022

Form 1449 (Modified)	Atty. Docket No.	IPVBP002C1
	Application No.:	12/157,092
Information Disclosure	Applicant	CHEUNG et al.
Statement By Applicant	Filing Date	June 6, 2008
	Group	2614
(Use Several Sheets if Necessary)		Page 1 of 1

U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	1.	7,587,227 B2	Sep.-09	Cheung et al.			
	2.	7,801,570 B2	Sep.-10	Cheung et al.			
	3.	2004/0208324 A1	Oct.-04	Cheung et al.			
	4.	2004/0208325 A1	Oct.-04	Cheung et al.			
	5.	2009/0298430 A1	Dec.-09	Cheung et al.			
	6.	2011/0103614 A1	May-11	Cheung et al.			
	7.						

Foreign Documents

							Translation	
Init.		Document No.	Date	Country	Class	Subclass	Yes	No

Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)

	A	
	B	
	C	
	D	
	E	
	F	
	G	
	H	
	I	
	J	
	K	
	L	
	M	
	N	

Examiner	Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

PTO/SB/96 (07-09)
Approved for use through 07/31/2012. 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(b)

Applicant/Patent Owner: CHEUNG et al.

Application No./Patent No.: 12/157,092 Filed/Issue Date: June 6, 2008

Titled: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS

IpVenture, Inc. , a corporation

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.

states that it is:

1. ☒ the assignee of the entire right, title, and interest in;

2. ☐ an assignee of less than the entire right, title, and interest in (The extent (by percentage) of its ownership interest is _____ %); or

3. ☐ the assignee of an undivided interest in the entirety of (a complete assignment from one of the joint inventors was made)

the patent application/patent identified above, by virtue of either:

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 015295, Frame 0337, or for which a copy therefore is attached.

OR

B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. 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.

2. From: _____ To: _____

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

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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.

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

☒ As required by 37 CFR 3.73(b)(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.

/Peter P. Tong/ September 26, 2011

Signature Date

Peter P. Tong President

Printed or Typed Name Title

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.

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.

PTO/SB/26 (07-09)
Approved for use through 07/31/2012. 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.

TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT	Docket Number (Optional) IPVBP002C1

In re Application of: CHEUNG et al.

Application No.: 12/157,092

Filed: June 6, 2008

For: DIRECTIONAL HEARING ENHANCEMENT SYSTEM

The owner*, IpVenture, Inc., of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term **prior patent** No. 7,388,962 as the term of said prior patent is defined in 35 U.S.C. 154 and 173, and as the term of said **prior patent** is presently shortened by any terminal disclaimer. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the **prior patent** are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term as defined in 35 U.S.C. 154 and 173 of the **prior patent**, "as the term of said **prior patent** is presently shortened by any terminal disclaimer," in the event that said **prior patent** later:

expires for failure to pay a maintenance fee;
is held unenforceable;
is found invalid by a court of competent jurisdiction;
is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
has all claims canceled by a reexamination certificate;
is reissued; or
is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

Check either box 1 or 2 below, if appropriate.

1. ☐ For submissions on behalf of a business/organization (e.g., corporation, partnership, university, government agency, etc.), the undersigned is empowered to act on behalf of the business/organization.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

2. ☑ The undersigned is an attorney or agent of record. Reg. No. 35,757

/Peter P. Tong/ — Signature
September 26, 2011 — Date

Peter P. Tong — Typed or printed name

650-903-9200, x102 — Telephone Number

☑ Terminal disclaimer fee under 37 CFR 1.20(d) included.

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.

*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner).
Form PTO/SB/96 may be used for making this certification. See MPEP § 324.

This collection of information is required by 37 CFR 1.321. 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.

Privacy Act Statement

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

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

Electronic Patent Application Fee Transmittal

Application Number:	12157092
Filing Date:	06-Jun-2008
Title of Invention:	Directional hearing enhancement systems
First Named Inventor/Applicant Name:	Kwok Wai Cheung
Filer:	Peter P. Tong/Angela Nijim
Attorney Docket Number:	IPVBP002C1

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Claims in excess of 20	2202	6	30	180
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
Statutory or terminal disclaimer	2814	1	80	80
		Total in USD ($)		**440**

Electronic Acknowledgement Receipt	
EFS ID:	11053784
Application Number:	12157092
International Application Number:	
Confirmation Number:	6143
Title of Invention:	Directional hearing enhancement systems
First Named Inventor/Applicant Name:	Kwok Wai Cheung
Customer Number:	34071
Filer:	Peter P. Tong/Angela Nijim
Filer Authorized By:	Peter P. Tong
Attorney Docket Number:	IPVBP002C1
Receipt Date:	26-SEP-2011
Filing Date:	06-JUN-2008
Time Stamp:	19:57:02
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$440
RAM confirmation Number	22992
Deposit Account	503874
Authorized User	TONG,PETER P
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Miscellaneous Incoming Letter	IPVCP002C1AmdATrans9-11.pdf	19967 b12121f4791400c46f124d5bdb3827bd68aa2c3f	no	1
Warnings:					
Information:					
2	Amendment/Req. Reconsideration-After Non-Final Reject	IPVBP002C1AmdAasfiled9-11.pdf	50781 1490333af4c828f3494732d090bcc50d9f0d86e4	no	11
Warnings:					
Information:					
3	Transmittal Letter	IPVBP002C1IDSTrans9-11.pdf	22630 56e556fd8818ebc1873cf38a46a9f5a0342f4b85	no	2
Warnings:					
Information:					
4	Information Disclosure Statement (IDS) Form (SB08)	IPVBP002C1-1449-9-11.pdf	22701 c61b07acad7e3b4af0c0d40fb19d91d23a1be564	no	1
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
5	Assignee showing of ownership per 37 CFR 3.73(b).	IPVBP002C1Statement373b9-11.pdf	422805 5b6982be803f8fbdc7f664f5785abf264a2568cf	no	2
Warnings:					
Information:					
6	Terminal Disclaimer Filed	IPVBP002C1TermDiscl9-11.pdf	210123 100f83ebc896e481eaf5c79f31c39e1de8e7d037	no	2
Warnings:					
Information:					
7	Fee Worksheet (SB06)	fee-info.pdf	33430 ea0dbc453a6a4dc06f921e4a7ee7d67c3bfe6a1e	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	782437		

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

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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

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

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: CHEUNG et al.

Attorney Docket No.: IPVBP002C1

Application No.: 12/157,092

Examiner: DABNEY, PHYLESHA LARVINIA

Filed: June 6, 2008

Group: 2614

Title: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS

AMENDMENT A TRANSMITTAL

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

Sir:

Transmitted herewith is an Amendment in the above-identified application.

The fee has been calculated as shown below.

	Claims After Amendment		Highest Previously Paid For	Present Extra	Small Entity Rate Fee	Large Entity Rate Fee
Total Claims	28	MINUS	22	06	x 26 = 156	x 52 =
Independent Claims	2	MINUS	3	00	x 110 =	x 220 =
Multiple Dependent Claim Present and Fee Not Previously Paid					$	$
				Total	$156.00	$

☐ Applicant(s) hereby petition for a _____- month extension(s) of time to respond to the aforementioned Office Action.

☒ Applicant(s) believe that no Extension of Time is required; however, if it is determined that such an extension is required, Applicant(s) hereby petition that such an extension be granted and authorize the Commissioner to charge the required fees for an Extension of Time under 37 CFR 1.136 to Deposit Account No. 50-3874 (Order No. IPVBP002C1).

☒ Any fees due are being paid electronically herewith.

☒ Please charge any additional fees required to facilitate filing the enclosed response, to Deposit Account No. 50-3874 (Order No. IPVBP002C1).

Respectfully submitted,

/Peter P. Tong/

Peter P. Tong
Reg. No. 35,757

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 12/157,092	Filing Date 06/06/2008	☐ To be Mailed

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☒		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

		(Column 1)		(Column 2)	(Column 3)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
AMENDMENT	**09/26/2011**	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 28	Minus	** 22	= 6	X $30 =	180	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 2	Minus	***3	= 0	X $125 =	0	OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE	180	OR	TOTAL ADD'L FEE	

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

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/TIA BENTLEY/

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.

Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination	
	12/157,092	CHEUNG ET AL.	

Document Code - DISQ	Internal Document – DO NOT MAIL

TERMINAL DISCLAIMER	☒ APPROVED	☐ DISAPPROVED
Date Filed : 26 SEPT 2011	This patent is subject to a Terminal Disclaimer	

Approved/Disapproved by:
JAB

U.S. Patent and Trademark Office

UNITED STATES PATENT AND TRADEMARK OFFICE

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

NOTICE OF ALLOWANCE AND FEE(S) DUE

34071 7590 12/29/2011

IPVENTURE, INC.
5150 EL CAMINO REAL
SUITE A-22
LOS ALTOS, CA 94022

EXAMINER
DABNEY, PHYLESHA LARVINIA

ART UNIT	PAPER NUMBER
2614	

DATE MAILED: 12/29/2011

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/157,092	06/06/2008	Kwok Wai Cheung	IPVBP002C1	6143

TITLE OF INVENTION: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$870	$300	$0	$1170	03/29/2012

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PTOL-85 (Rev. 02/11)

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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

34071 7590 12/29/2011

IPVENTURE, INC.
5150 EL CAMINO REAL
SUITE A-22
LOS ALTOS, CA 94022

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/157,092	06/06/2008	Kwok Wai Cheung	IPVBP002C1	6143

TITLE OF INVENTION: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$870	$300	$0	$1170	03/29/2012

EXAMINER	ART UNIT	CLASS-SUBCLASS
DABNEY, PHYLESHA LARVINIA	2614	381-381000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

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

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

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

4a. The following fee(s) are submitted:

❑ Issue Fee

❑ Publication Fee (No small entity discount permitted)

❑ Advance Order - # of Copies _____

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

❑ A check is enclosed.

❑ Payment by credit card. Form PTO-2038 is attached.

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

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

❑ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

❑ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/157,092	06/06/2008	Kwok Wai Cheung	IPVBP002C1	6143

34071 7590 12/29/2011

IPVENTURE, INC.
5150 EL CAMINO REAL
SUITE A-22
LOS ALTOS, CA 94022

EXAMINER	
DABNEY, PHYLESHA LARVINIA	
ART UNIT	**PAPER NUMBER**
2614	

DATE MAILED: 12/29/2011

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

The Patent Term Adjustment to date is 727 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 727 day(s).

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

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

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Privacy Act Statement

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

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

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

Notice of Allowability	Application No.	Applicant(s)	
	12/157,092	CHEUNG ET AL.	
	Examiner	Art Unit	
	PHYLESHA DABNEY	2614	

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

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *11/10/2011*.

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

3. ☒ The allowed claim(s) is/are *1-28*.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

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

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

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

This action is in response to the Terminal Disclaimer received 10 November 2011.

Claims **1-28** are pending.

Terminal Disclaimer

The terminal disclaimer filed on 9/26/2011 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of Patent No. 7388962 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Reasons for Allowance

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

The limitations claims in the patent application (7388962) are broader than the scope of the claims in the present application.

Furthermore, the prior art of records fails to a hearing enhancement system for a user, comprising: an audio system configured to receive input signals for broadcasting, and configured to up-convert the received input signals into up-converted signals to be wirelessly transmitted; a wireless receiver configured to wirelessly receive the up-converted signals; a down-converter configured to down-convert the received up-converted signals into down-converted signals; a modifier configured to modify the down-converted signals into modified signals based on at least one hearing characteristic of the user to enhance the hearing of the user; and a speaker configured to generate audio output signals from the modified signals for the user as substantially described and connected with the functional language of the recited claims.

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

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHYLESHA DABNEY whose telephone number is (571)272-7494. The examiner can normally be reached on Monday through Wednesday and Friday 9:00-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Davetta W. Goins can be reached on 571-272-2957. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any response to this action should be mailed to:
Commissioner of Patents and Trademarks
P O Box 1450
Alexandria, VA 22313-1450

Or faxed to:
(703) 273-8300, for formal communications intended for entry and for informal or draft communications, please label "Proposed" or "Draft" when submitting an informal amendment.

Hand-delivered responses should be brought to:
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

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.

December 17, 2011

/PHYLESHA DABNEY/
Examiner, Art Unit 2614

/DAVETTA W. GOINS/
Supervisory Patent Examiner, Art Unit 2614

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /P.D./

Form 1449 (Modified)	Atty. Docket No.	IPVBP002C1
	Application No.:	12/157,092
Information Disclosure	Applicant	CHEUNG et al.
Statement By Applicant	Filing Date	June 6, 2008
	Group	2614
(Use Several Sheets if Necessary)		Page 1 of 1

U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	1.	7,587,227 B2	Sep.-09	Cheung et al.			
	2.	7,801,570 B2	Sep.-10	Cheung et al.			
	3.	2004/0208324 A1	Oct.-04	Cheung et al.			
	4.	2004/0208325 A1	Oct.-04	Cheung et al.			
	5.	2009/0298430 A1	Dec.-09	Cheung et al.			
	6.	2011/0103614 A1	May-11	Cheung et al.			
	7.						

Foreign Documents

							Translation	
Init.		Document No.	Date	Country	Class	Subclass	Yes	No

Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)

	A	
	B	
	C	
	D	
	E	
	F	
	G	
	H	
	I	
	J	
	K	
	L	
	M	
	N	

Examiner	/Phylesha Dabney/	Date Considered	12/17/2011

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12157092	CHEUNG ET AL.
	Examiner	**Art Unit**
	PHYLESHA DABNEY	2614

ORIGINAL		INTERNATIONAL CLASSIFICATION										
CLASS	SUBCLASS	CLAIMED					NON-CLAIMED					
381	313	H	0	4	R	25 / 00 (2006.01.01)						

CROSS REFERENCE(S)					
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
381	77	381	330		
455	569.1				

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

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1		17												
	2		18												
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	14														
	15														
	16														

/PHYLESHA DABNEY/ Examiner.Art Unit 2614	12/17/2011	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	28	
/DAVETTA W GOINS/ Supervisory Patent Examiner.Art Unit 2614	12/19/2011	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12157092	CHEUNG ET AL.
	Examiner	Art Unit
	PHYLESHA DABNEY	2614

SEARCHED			
Class	Subclass	Date	Examiner
455	575.6, 550.1	5/20/11	pld
381	312, 316, 320, 77, 79	5/20/11	pld

SEARCH NOTES		
Search Notes	Date	Examiner
Plus and Claims search	5/20/11	pld
Text search	5/20/11	pld
Review continuation: 10826527 and related cases: 108265529, 11893835, 10826528	7/30/11	pld
Review IDS	7/31/11	pld
*check issue classification for 381/77 or 455/575.6	7/31/11	pld
Update search	12/17/2011	pld

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner
	same as above		

/PHYLESHA DABNEY/ Examiner.Art Unit 2614	

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	3327	(381/312,316,320,77,79,313,381).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2011/12/17 22:48
L5	4	1 and (speaker transducer receiver) near10 (directional) and hearing and (broadcast television radio stereo "cd player" phone) and wifi and ultrasonic near10 (speaker transducer receiver)	US-PGPUB; USPAT; USOCR	OR	ON	2011/12/17 22:51
S2	1	("20080279410").PN.	US-PGPUB; USPAT	OR	OFF	2011/05/20 15:21

12/17/2011 11:00:34 PM
H:\EAST Workspaces\W12\12157092.wsp

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: CHEUNG et al.	Attorney Docket No.: IPVBP002C1
Application No.: 12/157,092	Examiner: DABNEY, PHYLESHA LARVINIA
Filed: June 6, 2008	Group: 2614
Title: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS	

312 AMENDMENT

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

Dear Sir:

In response to the Notice of Allowance dated December 29, 2011, please amend the above-identified patent application as follows:

Amendments to the Specification are reflected on page 2 of this paper.
Amendments to the Claims are reflected in the listing of claims which begins on page 3 of this paper.
Remarks/Arguments are reflected on page 8 of this paper.

Amendments to the Specification:

Please **AMEND** the paragraph [0002] on page 1 of the specification as follows:

[0002] This application is also related to: (i) U.S. Patent Application No. 10/826,529, filed April 15, 2004, now U.S. Patent No. 7,269,452, and entitled, "DIRECTIONAL WIRELESS COMMUNICATION SYSTEMS," which is hereby incorporated herein by reference; (ii) U.S. Patent Application No. 10/826,531, filed April 15, 2004, now U.S. Patent 7,801,570, and entitled, "DIRECTIONAL SPEAKER FOR PORTABLE ELECTRONIC DEVICE," which is hereby incorporated herein by reference; (iii) U.S. Patent Application No. 10/826,537, filed April 15, 2004, and entitled, "METHOD AND APPARATUS FOR LOCALIZED DELIVERY OF AUDIO SOUND FOR ENHANCED PRIVACY," which is hereby incorporated herein by reference; and (iv) U.S. Patent Application No. 10/826,528, filed April 15, 2004 ~~concurrently~~, and entitled, "METHOD AND APPARATUS FOR WIRELESS AUDIO DELIVERY," which is hereby incorporated herein by reference.

Amendments to the Claims:
The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Original) A hearing enhancement system for a user, comprising:

an audio system configured to receive input signals for broadcasting, and configured to up-convert the received input signals into up-converted signals to be wirelessly transmitted;

a wireless receiver configured to wirelessly receive the up-converted signals;

a down-converter configured to down-convert the received up-converted signals into down-converted signals;

a modifier configured to modify the down-converted signals into modified signals based on at least one hearing characteristic of the user to enhance the hearing of the user; and

a speaker configured to generate audio output signals from the modified signals for the user.

2. (Original) A hearing enhancement system as recited in claim 1, wherein the up-converted signals are in the WiFi frequency band.

3. (Original) A hearing enhancement system as recited in claim 1, wherein the audio system is selected from the list consisting a television, a stereo system, a CD player and a radio.

4. (Currently amended) A hearing enhancement system as recited in claim 1, wherein the audio system is a ~~desktop~~ phone.

5. (Original) A hearing enhancement system as recited in claim 1, wherein the audio system receives the input signals from a microphone.

6. (Original) A hearing enhancement system as recited in claim 1, wherein the down-converted signals are modified such that a portion of the audio output signals has an increased power to enhance the hearing of the user.

7. (Original) A hearing enhancement system as recited in claim 6,

wherein the portion with increased power is selected based on frequency, and

wherein a higher frequency portion has increased power.

8. (Original) A hearing enhancement system as recited in claim 1,

wherein the at least one hearing characteristic of the user is determined via calibrating the user's hearing,

wherein the power of the audio output signals can be changed as a function of frequency, and

wherein the user can change the power of the audio output signals.

9. (Original) A hearing enhancement system as recited in claim 1, wherein the speaker is configured to generate ultrasonic signals, with at least a portion of the ultrasonic signals transformed into the audio output signals in air.

10. (Original) A hearing enhancement apparatus for a user, the apparatus being wirelessly coupled to an audio system, which is configured to receive input signals for broadcasting, and configured to up-convert the received input signals into up-converted signals to be wirelessly transmitted, the apparatus comprising:

a wireless receiver configured to wirelessly receive the up-converted signals;

a down-converter configured to down-convert the received up-converted signals into down-converted signals;

a modifier configured to modify the down-converted signals into modified signals based on at least one hearing characteristic of the user to enhance the hearing of the user; and

a speaker configured to generate audio output signals from the modified signals for the user.

11. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the down-converted signals are modified such that a portion of the audio output signals has an increased power to enhance the hearing of the user.

12. (Original) A hearing enhancement apparatus as recited in claim 11,

wherein the portion with the increased power is selected based on frequency,

wherein a higher frequency portion has increased power,

wherein the at least one hearing characteristic of the user is determined via calibrating the user's hearing,

wherein the power of the audio output signals can be changed as a function of frequency, and

wherein the user can change the power of the audio output signals.

13. (Original) A hearing enhancement apparatus as recited in claim 12, wherein the down-converted signals are further modified based on the noise level of the environment of the apparatus.

14. (Currently amended) A hearing enhancement apparatus as recited in claim 13, wherein the apparatus is also configured to operate as <u>at least a part of</u> a phone.

15. (Original) A hearing enhancement apparatus as recited in claim 11,

wherein the portion with increased power is selected based on frequency, and

wherein a higher frequency portion has increased power.

16. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the up-converted signals are in the WiFi frequency band.

17. (Original) A hearing enhancement apparatus as recited in claim 10,

wherein the at least one hearing characteristic of the user is determined via calibrating the user's hearing,

wherein the power of the audio output signals can be changed as a function of frequency, and

wherein the user can change the power of the audio output signals.

18. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the speaker is configured to generate ultrasonic signals, with at least a portion of the ultrasonic signals transformed into the audio output signals in air.

19. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the down-converted signals are further modified based on the noise level of the environment of the apparatus.

20. (Currently amended) A hearing enhancement apparatus as recited in claim 10, wherein the apparatus is also configured to operate as <u>at least a part of</u> a phone.

21. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the at least one hearing characteristic of the user is wirelessly received and stored in the hearing enhancement apparatus.

22. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the at least one hearing characteristic of the user is retrieved from a

portable media storage device while being physically in contact with the apparatus.

23. (Original) A hearing enhancement system as recited in claim 1, wherein the speaker is a directional speaker.

24. (Original) A hearing enhancement system as recited in claim 1, wherein the speaker is an ear speaker.

25. (Original) A hearing enhancement system as recited in claim 1, wherein the speaker is in a headset.

26. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the speaker is a directional speaker.

27. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the speaker is an ear speaker.

28. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the speaker is in a headset.

REMARKS

Applicants previously presented claims 1 through 28 for examination. In the above-identified Notice of Allowance, the Examiner has allowed all the claims, which Applicants acknowledge with gratitude. By this amendment, Applicants have corrected clerical mistakes in the specification and presented minor amendments to claims 4, 14 and 20. Accordingly, claims 1-28 remain pending. Reconsideration of the application and an early Notice of Supplemental Allowance are earnestly solicited.

If there are any issues remaining which the Examiner believes could be resolved through either a Supplemental Response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned representative at the telephone number listed below.

Respectfully submitted,

5150 El Camino Real
Building A, Suite 22
Los Altos, CA 94022
(650) 903-9200 ext 102

By: /Peter P. Tong/
Peter P. Tong
Registration No.: 35,757

Electronic Acknowledgement Receipt

EFS ID:	11980155
Application Number:	12157092
International Application Number:	
Confirmation Number:	6143
Title of Invention:	DIRECTIONAL HEARING ENHANCEMENT SYSTEMS
First Named Inventor/Applicant Name:	Kwok Wai Cheung
Customer Number:	34071
Filer:	Peter P. Tong/Angela Nijim
Filer Authorized By:	Peter P. Tong
Attorney Docket Number:	IPVBP002C1
Receipt Date:	01-FEB-2012
Filing Date:	06-JUN-2008
Time Stamp:	22:41:06
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment after Notice of Allowance (Rule 312)	IPVBP002C1-312Amd1-12.pdf	37905 a73dd4e9b8391d03e8a173063abee3c1b81ebfc1	no	8

Warnings:	
Information:	

Total Files Size (in bytes):	37905

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

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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

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

UNITED STATES PATENT AND TRADEMARK OFFICE

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.
12/157,092	06/06/2008	Kwok Wai Cheung	IPVBP002C1	6143

34071 7590 02/29/2012

IPVENTURE, INC.
5150 EL CAMINO REAL
SUITE A-22
LOS ALTOS, CA 94022

EXAMINER	
DABNEY, PHYLESHA LARVINIA	
ART UNIT	**PAPER NUMBER**
2614	

MAIL DATE	DELIVERY MODE
02/29/2012	PAPER

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

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

Response to Rule 312 Communication	Application No.	Applicant(s)
	12/157,092	CHEUNG ET AL.
	Examiner	Art Unit
	PHYLESHA DABNEY	2614

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

1. ☒ The amendment filed on *01 February 2012* under 37 CFR 1.312 has been considered, and has been:

a) ☐ entered.

b) ☐ entered as directed to matters of form not affecting the scope of the invention.

c) ☐ disapproved because the amendment was filed after the payment of the issue fee.
Any amendment filed after the date the issue fee is paid must be accompanied by a petition under 37 CFR 1.313(c)(1) and the required fee to withdraw the application from issue.

d) ☐ disapproved. See explanation below.

e) ☒ entered in part. See explanation below.

Amendment to the Specification:
The amendment received 2/1/2012 shall be entered since it doesn't affect the scope of the disclosure

Amendment to the Claims:
The amendment received 2/1/2012 shall not be entered since the amendment changes the scope of the claims.

MPEP 714.16

/DAVETTA W. GOINS/ Supervisory Patent Examiner, Art Unit 2614	/PHYLESHA DABNEY/ Examiner, Art Unit 2614

ENTER IN PART: /P.D./

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: CHEUNG et al.	Attorney Docket No.: IPVBP002C1
Application No.: 12/157,092	Examiner: DABNEY, PHYLESHA LARVINIA
Filed: June 6, 2008	Group: 2614
Title: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS	

312 AMENDMENT

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

Dear Sir:

In response to the Notice of Allowance dated December 29, 2011, please amend the above-identified patent application as follows:

Amendments to the Specification are reflected on page 2 of this paper.
Amendments to the Claims are reflected in the listing of claims which begins on page 3 of this paper.
Remarks/Arguments are reflected on page 8 of this paper.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT

In re application of: CHEUNG et al.	Attorney Docket No.: IPVBP002C1
Application No.: 12/157,092	Examiner: DABNEY, PHYLESHA LARVINIA
Filed: June 6, 2008	Group: 2614
Title: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS	

REQUEST FOR CONTINUED EXAMINATION (RCE) (37 CFR §1.114)

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

This is a Request for Continued Examination (RCE) of the above-identified application.

1. **Submission required under 37 C.F.R. §1.114:**

a. ☐ Previously submitted
   i. ☐ Consider the amendment/reply under 37 C.F.R. §1.116 previously filed on _____. *(Any unentered amendment referred to above will be entered.)*
   ii. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____.
   iii. ☐ Other _____.

b. ☒ Enclosed
   i. ☒ Amendment/Reply
   ii. ☐ Affidavit/Declaration
   iii. ☐ Information Disclosure Statement with Form PTO-1449
      ☐ Copies of IDS Citations
   iv. ☐ Other _____.

2. **Fees**: *(The RCE fee is required at the time the RCE is filed.)*

Fee Calculation (37 CFR §1.16)

Fee for Request for Continued Examination Under 37 C.F.R. §1.17(e)	$930 =	
	TOTAL	$465.00
SMALL ENTITY 50% FILING FEE REDUCTION (if applicable)	$465.00	

☐ a. Applicant hereby petitions for a month extension of time.

☒ b. Applicant believes that no (additional) extension of time is required; however, if it is determined that such an extension is required, Applicant hereby petitions that such an extension be granted and authorizes the Director to charge the required fees for an extension of time under 37 CFR §1.136 to Deposit Account No. 50-3874 (Order No. IPVBP002C1).

☒ c. Any fees due are being paid electronically herewith.

☒ d. The Director is authorized to charge any fees beyond the amount enclosed which may be required, or to credit any overpayment, to Deposit Account No. 50-3874 (Order No. IPVBP002C1).

3. ☒ Please send correspondence to the following address:

Customer Number 34071

34071

IpVenture, Inc.
5150 El Camino Real, Suite A-22
Los Altos, CA 94022

Please direct any calls to (650) 903-9200, x102.

Date: March 16, 2012

/Peter P. Tong/
Peter P. Tong
Registration No. 35,757

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: CHEUNG et al.

Application No.: 12/157,092

Filed: June 6, 2008

Title: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS

Attorney Docket No.: IPVBP002C1

Examiner: DABNEY, PHYLESHA LARVINIA

Group: 2614

AMENDMENT B TRANSMITTAL

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

Sir:

Transmitted herewith is an Amendment in the above-identified application.

The fee has been calculated as shown below.

	Claims After Amendment		Highest Previously Paid For	Present Extra	Small Entity Rate Fee	Large Entity Rate Fee
Total Claims	28	MINUS	28	00	x 30 =	x 60 =
Independent Claims	2	MINUS	3	00	x 125 =	x 250 =
Multiple Dependent Claim Present and Fee Not Previously Paid					$	$
				Total	$00.00	$

☐ Applicant(s) hereby petition for a _____- month extension(s) of time to respond to the aforementioned Office Action.

☒ Applicant(s) believe that no (additional) Extension of Time is required; however, if it is determined that such an extension is required, Applicant(s) hereby petition that such an extension be granted and authorize the Commissioner to charge the required fees for an Extension of Time under 37 CFR 1.136 to Deposit Account No. 50-3874 (Order No. IPVBP002C1).

☒ Any fees due are being paid electronically herewith.

☒ Please charge any additional fees required to facilitate filing the enclosed response, to Deposit Account No. 50-3874 (Order No.IPVBP002C1).

Respectfully submitted,

/Peter P. Tong/

Peter P. Tong
Reg. No. 35,757

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: CHEUNG et al.	Attorney Docket No.: IPVBP002C1
Application No.: 12/157,092	Examiner: DABNEY, PHYLESHA LARVINIA
Filed: June 6, 2008	Group: 2614
Title: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS	

AMENDMENT B

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

Dear Sir:

In response to the Notice of Allowance dated December 29, 2011 and the Office Communication dated February 29, 2012, please amend the above-identified patent application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments are reflected on page 7 of this paper.

Amendments to the Claims:
The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Original) A hearing enhancement system for a user, comprising:

an audio system configured to receive input signals for broadcasting, and configured to up-convert the received input signals into up-converted signals to be wirelessly transmitted;

a wireless receiver configured to wirelessly receive the up-converted signals;

a down-converter configured to down-convert the received up-converted signals into down-converted signals;

a modifier configured to modify the down-converted signals into modified signals based on at least one hearing characteristic of the user to enhance the hearing of the user; and

a speaker configured to generate audio output signals from the modified signals for the user.

2. (Original) A hearing enhancement system as recited in claim 1, wherein the up-converted signals are in the WiFi frequency band.

3. (Original) A hearing enhancement system as recited in claim 1, wherein the audio system is selected from the list consisting a television, a stereo system, a CD player and a radio.

4. (Currently amended) A hearing enhancement system as recited in claim 1, wherein the audio system is a ~~desktop~~ phone.

5. (Original) A hearing enhancement system as recited in claim 1, wherein the audio system receives the input signals from a microphone.

Apple Inc. Exhibit 1002 Page 200

6. (Original) A hearing enhancement system as recited in claim 1, wherein the down-converted signals are modified such that a portion of the audio output signals has an increased power to enhance the hearing of the user.

7. (Original) A hearing enhancement system as recited in claim 6,

wherein the portion with increased power is selected based on frequency, and

wherein a higher frequency portion has increased power.

8. (Original) A hearing enhancement system as recited in claim 1,

wherein the at least one hearing characteristic of the user is determined via calibrating the user's hearing,

wherein the power of the audio output signals can be changed as a function of frequency, and

wherein the user can change the power of the audio output signals.

9. (Original) A hearing enhancement system as recited in claim 1, wherein the speaker is configured to generate ultrasonic signals, with at least a portion of the ultrasonic signals transformed into the audio output signals in air.

10. (Original) A hearing enhancement apparatus for a user, the apparatus being wirelessly coupled to an audio system, which is configured to receive input signals for broadcasting, and configured to up-convert the received input signals into up-converted signals to be wirelessly transmitted, the apparatus comprising:

a wireless receiver configured to wirelessly receive the up-converted signals;

a down-converter configured to down-convert the received up-converted signals into down-converted signals;

a modifier configured to modify the down-converted signals into modified signals based on at least one hearing characteristic of the user to enhance the hearing of the user; and

a speaker configured to generate audio output signals from the modified signals for the user.

11. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the down-converted signals are modified such that a portion of the audio output signals has an increased power to enhance the hearing of the user.

12. (Original) A hearing enhancement apparatus as recited in claim 11,

wherein the portion with the increased power is selected based on frequency,

wherein a higher frequency portion has increased power,

wherein the at least one hearing characteristic of the user is determined via calibrating the user's hearing,

wherein the power of the audio output signals can be changed as a function of frequency, and

wherein the user can change the power of the audio output signals.

13. (Original) A hearing enhancement apparatus as recited in claim 12, wherein the down-converted signals are further modified based on the noise level of the environment of the apparatus.

14. (Currently amended) A hearing enhancement apparatus as recited in claim 13, wherein the apparatus is also configured to operate as <u>at least a part of</u> a phone.

15. (Original) A hearing enhancement apparatus as recited in claim 11,

wherein the portion with increased power is selected based on frequency, and

wherein a higher frequency portion has increased power.

16. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the up-converted signals are in the WiFi frequency band.

17. (Original) A hearing enhancement apparatus as recited in claim 10,

wherein the at least one hearing characteristic of the user is determined via calibrating the user's hearing,

wherein the power of the audio output signals can be changed as a function of frequency, and

wherein the user can change the power of the audio output signals.

18. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the speaker is configured to generate ultrasonic signals, with at least a portion of the ultrasonic signals transformed into the audio output signals in air.

19. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the down-converted signals are further modified based on the noise level of the environment of the apparatus.

20. (Currently amended) A hearing enhancement apparatus as recited in claim 10, wherein the apparatus is also configured to operate as <u>at least a part of</u> a phone.

21. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the at least one hearing characteristic of the user is wirelessly received and stored in the hearing enhancement apparatus.

22. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the at least one hearing characteristic of the user is retrieved from a

portable media storage device while being physically in contact with the apparatus.

23. (Original) A hearing enhancement system as recited in claim 1, wherein the speaker is a directional speaker.

24. (Original) A hearing enhancement system as recited in claim 1, wherein the speaker is an ear speaker.

25. (Original) A hearing enhancement system as recited in claim 1, wherein the speaker is in a headset.

26. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the speaker is a directional speaker.

27. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the speaker is an ear speaker.

28. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the speaker is in a headset.

REMARKS

Applicants previously presented claims 1 through 28 for examination. In the above-identified Notice of Allowance, the Examiner has allowed all the claims, which Applicants acknowledge with gratitude. Subsequently, Applicants submitted an amendment under 312 for the specification, with a number of minor amendments to claims 4, 14 and 20. As indicated in the above-identified Office Communication, the specification amendment has been entered, but not the claims. By this amendment, Applicants have re-submitted the minor amendments to claims 4, 14 and 20. Accordingly, claims 1-28 remain pending. Reconsideration of the application and an early Notice of Allowance are earnestly solicited.

If there are any issues remaining which the Examiner believes could be resolved through either a Supplemental Response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned representative at the telephone number listed below.

Respectfully submitted,

5150 El Camino Real
Building A, Suite 22
Los Altos, CA 94022
(650) 903-9200 ext 102

By: /Peter P. Tong/
Peter P. Tong
Registration No.: 35,757

Electronic Patent Application Fee Transmittal	
Application Number:	12157092
Filing Date:	06-Jun-2008
Title of Invention:	DIRECTIONAL HEARING ENHANCEMENT SYSTEMS
First Named Inventor/Applicant Name:	Kwok Wai Cheung
Filer:	Peter P. Tong/Angela Nijim
Attorney Docket Number:	IPVBP002C1
Filed as Small Entity	

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Request for continued examination	2801	1	465	465
		Total in USD ($)		**465**

Electronic Acknowledgement Receipt	
EFS ID:	12332213
Application Number:	12157092
International Application Number:	
Confirmation Number:	6143
Title of Invention:	DIRECTIONAL HEARING ENHANCEMENT SYSTEMS
First Named Inventor/Applicant Name:	Kwok Wai Cheung
Customer Number:	34071
Filer:	Peter P. Tong/Angela Nijim
Filer Authorized By:	Peter P. Tong
Attorney Docket Number:	IPVBP002C1
Receipt Date:	19-MAR-2012
Filing Date:	06-JUN-2008
Time Stamp:	11:33:17
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$465
RAM confirmation Number	9906
Deposit Account	503874
Authorized User	TONG,PETER P
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees) Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Continued Examination (RCE)	IPVBP002C1-RCE-3-12.pdf	28834 8678971953893dfd6abc96427e17f542a576dece	no	2
Warnings:					
This is not a USPTO supplied RCE SB30 form.					
Information:					
2	Miscellaneous Incoming Letter	IPVBP002C1-AmdBTrans-3-12.pdf	18913 c4e9daca5c69409adf19957f9d0c2c203518ff1f	no	1
Warnings:					
Information:					
3	Amendment Submitted/Entered with Filing of CPA/RCE	IPVBP002C1-AmdB-asfiled-3-12.pdf	34474 59b6241e6615ded685c432af9323b49fc6ba1c22	no	7
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	30818 6d1c5a9fefaa9ecbc5498a74a31fff8d230041b4	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	113039		

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

<u>New Applications Under 35 U.S.C. 111</u>
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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

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

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
12/157,092	06/06/2008	

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☒		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	03/19/2012	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 28	Minus	** 28	= 0	X $30 =	0	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 2	Minus	***3	= 0	X $125 =	0	OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

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

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/MARTHA NEWMAN/

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.

UNITED STATES PATENT AND TRADEMARK OFFICE

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

NOTICE OF ALLOWANCE AND FEE(S) DUE

34071 7590 03/30/2012

IPVENTURE, INC.
5150 EL CAMINO REAL
SUITE A-22
LOS ALTOS, CA 94022

EXAMINER
DABNEY, PHYLESHA LARVINIA

ART UNIT	PAPER NUMBER
2614	

DATE MAILED: 03/30/2012

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/157,092	06/06/2008	Kwok Wai Cheung	IPVBP002C1	6143

TITLE OF INVENTION: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$870	$300	$0	$1170	07/02/2012

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PTOL-85 (Rev. 02/11)

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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

34071 7590 03/30/2012

IPVENTURE, INC.
5150 EL CAMINO REAL
SUITE A-22
LOS ALTOS, CA 94022

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/157,092	06/06/2008	Kwok Wai Cheung	IPVBP002C1	6143

TITLE OF INVENTION: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$870	$300	$0	$1170	07/02/2012

EXAMINER	ART UNIT	CLASS-SUBCLASS
DABNEY, PHYLESHA LARVINIA	2614	381-313000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

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

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

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

4a. The following fee(s) are submitted:

❑ Issue Fee

❑ Publication Fee (No small entity discount permitted)

❑ Advance Order - # of Copies _____

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

❑ A check is enclosed.

❑ Payment by credit card. Form PTO-2038 is attached.

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

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

❑ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

❑ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/157,092	06/06/2008	Kwok Wai Cheung	IPVBP002C1	6143

34071 7590 03/30/2012

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LOS ALTOS, CA 94022

EXAMINER	
DABNEY, PHYLESHA LARVINIA	
ART UNIT	**PAPER NUMBER**
2614	

DATE MAILED: 03/30/2012

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

The Patent Term Adjustment to date is 727 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 727 day(s).

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

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

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Privacy Act Statement

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

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

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

Notice of Allowability	Application No.	Applicant(s)	
	12/157,092	CHEUNG ET AL.	
	Examiner	Art Unit	
	PHYLESHA DABNEY	2614	

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

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *3/19/2012*.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are *1-28*.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 19 March 2012 has been entered. Claims **1-28** are pending.

Reasons for Allowance

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

The limitations claims in the patent application (7388962) are broader than the scope of the claims in the present application.

Furthermore, the prior art of records fails to a hearing enhancement system for a user, comprising: an audio system configured to receive input signals for broadcasting, and configured to up-convert the received input signals into up-converted signals to be wirelessly transmitted; a wireless receiver configured to wirelessly receive the up-converted signals; a down-converter configured to down-convert the received up-converted signals into down-converted signals; a modifier configured to modify the down-converted signals into modified signals based on at least one hearing characteristic of the user to enhance the hearing of the user; and a speaker configured to generate audio output signals from the modified signals for the user as substantially described and connected with the functional language of the recited claims.

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

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHYLESHA DABNEY whose telephone number is (571)272-7494. The examiner can normally be reached on Monday through Wednesday and Friday 9:00-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Davetta W. Goins can be reached on 571-272-2957. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any response to this action should be mailed to:
Commissioner of Patents and Trademarks
P O Box 1450
Alexandria, VA 22313-1450

Or faxed to:
(703) 273-8300, for formal communications intended for entry and for informal or draft communications, please label "Proposed" or "Draft" when submitting an informal amendment.

Hand-delivered responses should be brought to:
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

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.

March 22, 2012

/PHYLESHA DABNEY/
Examiner, Art Unit 2614

/DAVETTA W. GOINS/
Supervisory Patent Examiner, Art Unit 2614

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12157092	CHEUNG ET AL.
	Examiner	Art Unit
	PHYLESHA DABNEY	2614

SEARCHED			
Class	Subclass	Date	Examiner
455	575.6, 550.1	5/20/11	pld
381	312, 316, 320, 77, 79	5/20/11	pld

SEARCH NOTES		
Search Notes	Date	Examiner
Plus and Claims search	5/20/11	pld
Text search	5/20/11	pld
Review continuation: 10826527 and related cases: 108265529, 11893835, 10826528	7/30/11	pld
Review IDS	7/31/11	pld
*check issue classification for 381/77 or 455/575.6	7/31/11	pld
Update search	12/17/2011	pld
Review Amendment after allowance	3/21/2012	pld

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner
	same as above		

/PHYLESHA DABNEY/ Examiner.Art Unit 2614	

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12157092	CHEUNG ET AL.
	Examiner	**Art Unit**
	PHYLESHA DABNEY	2614

ORIGINAL		INTERNATIONAL CLASSIFICATION										
CLASS	SUBCLASS	CLAIMED					NON-CLAIMED					
381	313	H	0	4	R	25 / 00 (2006.01.01)						

CROSS REFERENCE(S)					
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
381	77	381	330		
455	569.1				

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

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

/PHYLESHA DABNEY/ Examiner.Art Unit 2614	03/22/2012	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	28	
/DAVETTA W GOINS/ Supervisory Patent Examiner.Art Unit 2614	03/24/2012	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT

In re application of: CHEUNG et al.	Attorney Docket No.: IPVBP002C1
Application No.: 12/157,092	Examiner: DABNEY, PHYLESHA LARVINIA
Filed: June 6, 2008	Group: 2614
Title: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS	

REQUEST FOR CONTINUED EXAMINATION (RCE) (37 CFR §1.114)

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

This is a Request for Continued Examination (RCE) of the above-identified application.

1. **Submission required under 37 C.F.R. §1.114:**

a. ☐ Previously submitted
   i. ☐ Consider the amendment/reply under 37 C.F.R. §1.116 previously filed on _____. *(Any unentered amendment referred to above will be entered.)*
   ii. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____.
   iii. ☐ Other _____.

b. ☒ Enclosed
   i. ☒ Amendment/Reply
   ii. ☐ Affidavit/Declaration
   iii. ☒ Information Disclosure Statement with Form PTO-1449
      ☐ Copies of IDS Citations
   iv. ☐ Other _____.

2. **Fees**: *(The RCE fee is required at the time the RCE is filed.)*

Fee Calculation (37 CFR §1.16)

Fee for Request for Continued Examination Under 37 C.F.R. §1.17(e)	$930 =	
	TOTAL	$465.00
SMALL ENTITY 50% FILING FEE REDUCTION (if applicable)	$465.00	

☐ a. Applicant hereby petitions for a month extension of time.

☒ b. Applicant believes that no (additional) extension of time is required; however, if it is determined that such an extension is required, Applicant hereby petitions that such an extension be granted and authorizes the Director to charge the required fees for an extension of time under 37 CFR §1.136 to Deposit Account No. 50-3874 (Order No. IPVBP002C1).

☒ c. Any fees due are being paid electronically herewith.

☒ d. The Director is authorized to charge any fees beyond the amount enclosed which may be required, or to credit any overpayment, to Deposit Account No. 50-3874 (Order No. IPVBP002C1).

3. ☒ Please send correspondence to the following address:

Customer Number 34071

34071

IpVenture, Inc.
5150 El Camino Real, Suite A-22
Los Altos, CA 94022

Please direct any calls to (650) 903-9200, x102.

Date: June 29, 2012

/Peter P. Tong/
Peter P. Tong
Registration No. 35,757

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: CHEUNG et al.

Attorney Docket No.: IPVBP002C1

Application No.: 12/157,092

Examiner: DABNEY, PHYLESHA LARVINIA

Filed: June 6, 2008

Group: 2614

Title: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS

AMENDMENT C TRANSMITTAL

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

Sir:

Transmitted herewith is an Amendment in the above-identified application.

The fee has been calculated as shown below.

	Claims After Amendment		Highest Previously Paid For	Present Extra	Small Entity Rate Fee	Large Entity Rate Fee
Total Claims	45	MINUS	28	17	x 30 = 510	x 60 =
Independent Claims	2	MINUS	3	00	x 125 =	x 250 =
Multiple Dependent Claim Present and Fee Not Previously Paid					$	$
				Total	$510.00	$

☐ Applicant(s) hereby petition for a _____- month extension(s) of time to respond to the aforementioned Office Action.

☒ Applicant(s) believe that no (additional) Extension of Time is required; however, if it is determined that such an extension is required, Applicant(s) hereby petition that such an extension be granted and authorize the Commissioner to charge the required fees for an Extension of Time under 37 CFR 1.136 to Deposit Account No. 50-3874 (Order No. IPVBP002C1).

☒ Any fees due are being paid electronically herewith.

☒ Please charge any additional fees required to facilitate filing the enclosed response, to Deposit Account No. 50-3874 (Order No.IPVBP002C1).

Respectfully submitted,

/Peter P. Tong/

Peter P. Tong
Reg. No. 35,757

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: CHEUNG et al.	Attorney Docket No.: IPVBP002C1
Application No.: 12/157,092	Examiner: DABNEY, PHYLESHA LARVINIA
Filed: June 6, 2008	Group: 2614
Title: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS	

AMENDMENT C

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

Dear Sir:

In response to the Notice of Allowance dated March 30, 2012, please amend the above-identified patent application as follows:

Amendments to the Specification are reflected on page 2 of the paper.
Amendments to the Claims are reflected in the listing of claims which begins on page 4 of this paper.
Remarks/Arguments are reflected on page 12 of this paper.

Amendments to the Specification:

On page 1, line 1, please AMEND the title as follows:

~~DIRECTIONAL~~ HEARING ENHANCEMENT SYSTEMS

On page 2, please AMEND paragraph 3 of the specification as follows:

[0003] The present invention relates generally to a hearing enhancement system, and more particularly, to a hearing enhancement system whose audio signals ~~are~~ can be directional.

On page 5, please AMEND paragraph 15 of the specification as follows:

[0015] In one embodiment, the [The] present invention pertains to a hearing enhancement system that enhances an individual's hearing based on a directional speaker. Many people are mildly or moderately hearing impaired. The decrease in hearing ability may not be to the point where one needs a dedicated, traditional hearing aid. Even so, it would certainly be advantageous to provide some hearing improvement. A number of embodiments in the present invention are particularly suitable for those with mild or moderate hearing loss.

On page 30, please AMEND the Abstract of the specification as follows:

A hearing enhancement system that enhances a user's hearing ~~based on a directional speaker~~ is disclosed. For example ~~In one embodiment~~, the system can include an interface unit that has a directional speaker and a microphone. The microphone captures input audio signals that are transformed into ultrasonic signals. The speaker transmits the ultrasonic signals, which are transformed into output audio signals by interaction with air. At least a portion of the output audio signals are modified to enhance the hearing of the user. Based on the system, the user's ear remains free from any inserted objects and thus is free from annoying occlusion effects. Compared to existing hearing aids, the system is

relatively inexpensive. In another embodiment, the system can also be used as a phone. In yet another embodiment, the system can also access audio signals from other portable or non-portable instruments, wired or wirelessly, such as from home entertainment units, phones, microphones at a conference or speakers at a movie theater.

Amendments to the Claims:

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

Listing of Claims:

1. (Original) A hearing enhancement system for a user, comprising:

an audio system configured to receive input signals for broadcasting, and configured to up-convert the received input signals into up-converted signals to be wirelessly transmitted;

a wireless receiver configured to wirelessly receive the up-converted signals;

a down-converter configured to down-convert the received up-converted signals into down-converted signals;

a modifier configured to modify the down-converted signals into modified signals based on at least one hearing characteristic of the user to enhance the hearing of the user; and

a speaker configured to generate audio output signals from the modified signals for the user.

2. (Original) A hearing enhancement system as recited in claim 1, wherein the up-converted signals are in the WiFi frequency band.

3. (Original) A hearing enhancement system as recited in claim 1, wherein the audio system is selected from the list consisting a television, a stereo system, a CD player and a radio.

4. (Previously presented) A hearing enhancement system as recited in claim 1, wherein the audio system is a phone.

5. (Original) A hearing enhancement system as recited in claim 1, wherein the audio system receives the input signals from a microphone.

6. (Original) A hearing enhancement system as recited in claim 1, wherein the down-converted signals are modified such that a portion of the audio output signals has an increased power to enhance the hearing of the user.

7. (Original) A hearing enhancement system as recited in claim 6,

wherein the portion with increased power is selected based on frequency, and

wherein a higher frequency portion has increased power.

8. (Original) A hearing enhancement system as recited in claim 1,

wherein the at least one hearing characteristic of the user is determined via calibrating the user's hearing,

wherein the power of the audio output signals can be changed as a function of frequency, and

wherein the user can change the power of the audio output signals.

9. (Original) A hearing enhancement system as recited in claim 1, wherein the speaker is configured to generate ultrasonic signals, with at least a portion of the ultrasonic signals transformed into the audio output signals in air.

10. (Original) A hearing enhancement apparatus for a user, the apparatus being wirelessly coupled to an audio system, which is configured to receive input signals for broadcasting, and configured to up-convert the received input signals into up-converted signals to be wirelessly transmitted, the apparatus comprising:

a wireless receiver configured to wirelessly receive the up-converted signals;

a down-converter configured to down-convert the received up-converted signals into down-converted signals;

a modifier configured to modify the down-converted signals into modified signals based on at least one hearing characteristic of the user to enhance the hearing of the user; and

a speaker configured to generate audio output signals from the modified signals for the user.

11. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the down-converted signals are modified such that a portion of the audio output signals has an increased power to enhance the hearing of the user.

12. (Original) A hearing enhancement apparatus as recited in claim 11,

wherein the portion with the increased power is selected based on frequency,

wherein a higher frequency portion has increased power,

wherein the at least one hearing characteristic of the user is determined via calibrating the user's hearing,

wherein the power of the audio output signals can be changed as a function of frequency, and

wherein the user can change the power of the audio output signals.

13. (Original) A hearing enhancement apparatus as recited in claim 12, wherein the down-converted signals are further modified based on the noise level of the environment of the apparatus.

14. (Previously presented) A hearing enhancement apparatus as recited in claim 13, wherein the apparatus is also configured to operate as at least a part of a phone.

15. (Original) A hearing enhancement apparatus as recited in claim 11,

wherein the portion with increased power is selected based on frequency, and

wherein a higher frequency portion has increased power.

16. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the up-converted signals are in the WiFi frequency band.

17. (Original) A hearing enhancement apparatus as recited in claim 10,

wherein the at least one hearing characteristic of the user is determined via calibrating the user's hearing,

wherein the power of the audio output signals can be changed as a function of frequency, and

wherein the user can change the power of the audio output signals.

18. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the speaker is configured to generate ultrasonic signals, with at least a portion of the ultrasonic signals transformed into the audio output signals in air.

19. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the down-converted signals are further modified based on the noise level of the environment of the apparatus.

20. (Previously presented) A hearing enhancement apparatus as recited in claim 10, wherein the apparatus is also configured to operate as at least a part of a phone.

21. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the at least one hearing characteristic of the user is wirelessly received and stored in the hearing enhancement apparatus.

22. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the at least one hearing characteristic of the user is retrieved from a portable media storage device while being physically in contact with the apparatus.

23. (Original) A hearing enhancement system as recited in claim 1, wherein the speaker is a directional speaker.

24. (Original) A hearing enhancement system as recited in claim 1, wherein the speaker is an ear speaker.

25. (Original) A hearing enhancement system as recited in claim 1, wherein the speaker is in a headset.

26. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the speaker is a directional speaker.

27. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the speaker is an ear speaker.

28. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the speaker is in a headset.

29. (New) A hearing enhancement apparatus as recited in claim 10,

wherein the audio system is configured to operate as a phone,

wherein the hearing enhancement apparatus is configured to operate in conjunction with or at least as a part of a mobile phone,

wherein the speaker is an ear speaker, and

wherein to enhance the hearing of the user, the modifier is configured to modify the down-converted signals into modified signals at one or more frequencies within the audio frequencies, with the one or more frequencies being determined by the at least one hearing characteristic of the user.

30. (New) A hearing enhancement apparatus as recited in claim 29, wherein the at least one hearing characteristic of the user is determined via calibrating the user's hearing at least across the one or more frequencies to generate at least a portion of the hearing profile of the user, and

wherein the hearing profile is stored in the hearing enhancement apparatus.

31. (New) A hearing enhancement apparatus as recited in claim 30, wherein the hearing enhancement apparatus allows the user to calibrate the user's hearing via a computing device.

32. (New) A hearing enhancement apparatus as recited in claim 30, wherein the hearing enhancement apparatus is configured to periodically remind the user to calibrate the user's hearing.

33. (New) A hearing enhancement apparatus as recited in claim 30, wherein at least a portion of the at least one hearing characteristic of the user is wirelessly received by and stored in the hearing enhancement apparatus.

34. (New) A hearing enhancement apparatus as recited in claim 33, wherein the hearing enhancement apparatus is a headset.

35. (New) A hearing enhancement apparatus as recited in claim 33, wherein the hearing enhancement apparatus is a computing device that is wearable.

36. (New) A hearing enhancement apparatus as recited in claim 33, wherein the hearing enhancement apparatus is a mobile phone.

37. (New) A hearing enhancement apparatus as recited in claim 36, wherein the hearing enhancement apparatus is configured to periodically remind the user to calibrate the user's hearing.

38. (New) A hearing enhancement apparatus as recited in claim 36, wherein the hearing enhancement apparatus includes a user control configured to allow the user to control the power of the audio output signals on a plurality of frequency bands across the audio frequencies.

39. (New) A hearing enhancement apparatus as recited in claim 29, wherein at least a portion of the at least one hearing characteristic is wirelessly received by and stored in the hearing enhancement apparatus.

40. (New) A hearing enhancement apparatus as recited in claim 39, wherein the hearing enhancement apparatus is a headset.

41. (New) A hearing enhancement apparatus as recited in claim 39, wherein the hearing enhancement apparatus is a computing device that is wearable.

42. (New) A hearing enhancement apparatus as recited in claim 39, wherein the hearing enhancement apparatus is a mobile phone.

43. (New) A hearing enhancement apparatus as recited in claim 29, wherein the hearing enhancement apparatus is configured to alter a power level of the audio output signals based on a noise level of the environment of the apparatus.

44. (New) A hearing enhancement apparatus as recited in claim 43,

wherein the hearing enhancement apparatus is configured to increase the power of the audio output signals as the noise level increases, and

wherein the hearing enhancement apparatus is configured not to further increase the power of the audio output signals if the noise level is beyond a certain predetermined threshold.

45. (New) A hearing enhancement apparatus as recited in claim 29, wherein the apparatus includes a volume control that is configured to respond to a voice command of the user.

Apple Inc. Exhibit 1002 Page 234

REMARKS

Applicants previously presented claims 1 through 28 for examination. In the above-identified Notice of Allowance, the Examiner has allowed all the claims, which Applicants acknowledge with gratitude. By this amendment, Applicants have added dependent claims 29-45. Accordingly, claims 1-45 are pending. Reconsideration of the application and an early Notice of Allowance are earnestly solicited.

If there are any issues remaining which the Examiner believes could be resolved through either a Supplemental Response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned representative at the telephone number listed below.

Respectfully submitted,

5150 El Camino Real
Building A, Suite 22
Los Altos, CA 94022
(650) 903-9200 ext 102

By: /Peter P. Tong/
Peter P. Tong
Registration No.: 35,757

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: CHEUNG et al.	Attorney Docket No.: IPVBP002C1
Application No.: 12/157,092	Examiner: DABNEY, PHYLESHA LARVINIA
Filed: June 6, 2008	Group: 2614
Title: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS	

INFORMATION DISCLOSURE STATEMENT
37 CFR §§1.56 AND 1.97(b)

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

Dear Sir:

The references listed in the attached PTO Form 1449, copies of which are attached, may be material to examination of the above-identified patent application. Applicants submit these references in compliance with their duty of disclosure pursuant to 37 CFR §§1.56 and 1.97. The Examiner is requested to make these references of official record in this application.

This Information Disclosure Statement is not to be construed as a representation that a search has been made, that additional information material to the examination of this application does not exist, or that these references indeed constitute prior art.

This Information Disclosure Statement is: (i) filed within three (3) months of the filing date of the above-referenced application, (ii) believed to be filed before the mailing date of a first Office Action on the merits, or (iii) believed to be filed before the mailing of a first Office Action after the filing of a Request for Continued Examination under §1.114.

Apple Inc. Exhibit 1002 Page 236

Accordingly, it is believed that no fees are due in connection with the filing of this Information Disclosure Statement. However, if it is determined that any fees are due, the Commissioner is hereby authorized to charge such fees to Deposit Account 50-3874 (Order No. IPVBP002C1).

Respectfully submitted,

/Peter P. Tong/

Peter P. Tong
Registration No. 35,757

5150 El Camino Real,
Building A, Ste. 22
Los Altos, CA 94022

Apple Inc. Exhibit 1002 Page 237

Form 1449 (Modified)	Atty. Docket No.	IPVBP002C1
	Application No.:	12/157,092
Information Disclosure	Applicant	CHEUNG et al.
Statement By Applicant	Filing Date	June 6, 2008
	Group	2614
(Use Several Sheets if Necessary)		Page 1 of 1

U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	1.	6,678,381 B1	Jan.-04	Manabe			
	2.	7,016,504 B1	Mar.-06	Shennib			
	3.	7,376,236 B1	May-12	Norris et al.			
	4.	8,208,970 B2	Jun.-12	Cheung et al.			
	5.	2004/0114770 A1	Jun.-04	Pompei			
	6.	2004/0170086 A1	Sep.-04	Mayer et al.			
	7.	2006/0210090 A1	Sep.-06	Shennib			
	8.	2006/0233404 A1	Oct.-06	Croft et al.			
	9.						
	10.						

Foreign Documents

							Translation	
Init.		Document No.	Date	Country	Class	Subclass	Yes	No

Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)

	A	
	B	
	C	
	D	
	E	
	F	
	G	
	H	
	I	
	J	

Examiner	Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Electronic Patent Application Fee Transmittal

Application Number:	12157092
Filing Date:	06-Jun-2008
Title of Invention:	DIRECTIONAL HEARING ENHANCEMENT SYSTEMS
First Named Inventor/Applicant Name:	Kwok Wai Cheung
Filer:	Peter P. Tong/Angela Nijim
Attorney Docket Number:	IPVBP002C1

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Claims in excess of 20	2202	17	30	510
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Request for continued examination	2801	1	465	465
		Total in USD ($)		**975**

Electronic Acknowledgement Receipt	
EFS ID:	13152145
Application Number:	12157092
International Application Number:	
Confirmation Number:	6143
Title of Invention:	DIRECTIONAL HEARING ENHANCEMENT SYSTEMS
First Named Inventor/Applicant Name:	Kwok Wai Cheung
Customer Number:	34071
Filer:	Peter P. Tong/Angela Nijim
Filer Authorized By:	Peter P. Tong
Attorney Docket Number:	IPVBP002C1
Receipt Date:	29-JUN-2012
Filing Date:	06-JUN-2008
Time Stamp:	23:30:01
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$975
RAM confirmation Number	8903
Deposit Account	503874
Authorized User	TONG,PETER P
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Continued Examination (RCE)	IPVBP002C1-RCE-6-12.pdf	28842 865313fe9dfe518d03159160dca262d5203c51f6	no	2
Warnings:					
This is not a USPTO supplied RCE SB30 form.					
Information:					
2	Miscellaneous Incoming Letter	IPVBP002C1-AmdCTrans-6-12.pdf	17234 749f2f620586c8e5afb3a267f79a33bd09ea46f6	no	1
Warnings:					
Information:					
3	Amendment Submitted/Entered with Filing of CPA/RCE	IPVBP002C1-AmdC-asfiled-6-12.pdf	47107 689f078ebbd19ed55e8d8e3ee13e22852ffb9a80	no	12
Warnings:					
Information:					
4	Transmittal Letter	IPVBP002C1-IDSTrans-6-12.pdf	20820 466e77b7855c25b8c0fd8069c96ad0ac21c2fb3b	no	2
Warnings:					
Information:					
5	Information Disclosure Statement (IDS) Form (SB08)	IPVBP002C1-1449-6-12.pdf	19587 992c0c7ee97ab8cc8bbc00ae2a6cf65f2c5022ff	no	1
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
6	Fee Worksheet (SB06)	fee-info.pdf	32505 dc6f6681af3767b544c990a796f274dbbe12e59d	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	166095		

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

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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

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

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
12/157,092	06/06/2008	

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☒		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	06/29/2012	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 45	Minus	** 28	= 17	X $30 =	510	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 2	Minus	***3	= 0	X $125 =	0	OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE	510	OR	TOTAL ADD'L FEE	

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

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/ANTHONY WILLIAMS/

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.

UNITED STATES PATENT AND TRADEMARK OFFICE

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

NOTICE OF ALLOWANCE AND FEE(S) DUE

34071 7590 08/22/2012

IPVENTURE, INC.
5150 EL CAMINO REAL
SUITE A-22
LOS ALTOS, CA 94022

EXAMINER
DABNEY, PHYLESHA LARVINIA

ART UNIT	PAPER NUMBER
2614	

DATE MAILED: 08/22/2012

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/157,092	06/06/2008	Kwok Wai Cheung	IPVBP002C1	6143

TITLE OF INVENTION: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$870	$300	$0	$1170	11/23/2012

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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

34071 7590 08/22/2012

IPVENTURE, INC.
5150 EL CAMINO REAL
SUITE A-22
LOS ALTOS, CA 94022

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/157,092	06/06/2008	Kwok Wai Cheung	IPVBP002C1	6143

TITLE OF INVENTION: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$870	$300	$0	$1170	11/23/2012

EXAMINER	ART UNIT	CLASS-SUBCLASS
DABNEY, PHYLESHA LARVINIA	2614	381-313000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

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

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

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

4a. The following fee(s) are submitted:

❑ Issue Fee

❑ Publication Fee (No small entity discount permitted)

❑ Advance Order - # of Copies _____

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

❑ A check is enclosed.

❑ Payment by credit card. Form PTO-2038 is attached.

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

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

❑ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

❑ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/157,092	06/06/2008	Kwok Wai Cheung	IPVBP002C1	6143

34071 7590 08/22/2012

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LOS ALTOS, CA 94022

EXAMINER	
DABNEY, PHYLESHA LARVINIA	
ART UNIT	**PAPER NUMBER**
2614	

DATE MAILED: 08/22/2012

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

The Patent Term Adjustment to date is 727 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 727 day(s).

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

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

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Privacy Act Statement

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

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

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

Notice of Allowability	Application No.	Applicant(s)	
	12/157,092	CHEUNG ET AL.	
	Examiner	Art Unit	
	PHYLESHA DABNEY	2614	

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

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *6/29/2012*.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are *1-45*.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 29 June 2012 has been entered. Claims **1-45** are pending.

Reasons for Allowance

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

The limitations claims in the patent application (7388962) are broader than the scope of the claims in the present application.

Furthermore, the prior art of records fails to a hearing enhancement system for a user, comprising: an audio system configured to receive input signals for broadcasting, and configured to up-convert the received input signals into up-converted signals to be wirelessly transmitted; a wireless receiver configured to wirelessly receive the up-converted signals; a down-converter configured to down-convert the received up-converted signals into down-converted signals; a modifier configured to modify the down-converted signals into modified signals based on at least one hearing characteristic of the user to enhance the hearing of the user; and a speaker configured to generate audio output signals from the modified signals for the user as substantially described and connected with the functional language of the recited claims.

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

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHYLESHA DABNEY whose telephone number is (571)272-7494. The examiner can normally be reached on Monday through Wednesday and Friday 10:30-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Davetta W. Goins can be reached on 571-272-2957. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any response to this action should be mailed to:
Commissioner of Patents and Trademarks
P O Box 1450
Alexandria, VA 22313-1450

Or faxed to:
(703) 273-8300, for formal communications intended for entry and for informal or draft communications, please label "Proposed" or "Draft" when submitting an informal amendment.

Hand-delivered responses should be brought to:
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

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.

June 29, 2012

/PHYLESHA DABNEY/
Examiner, Art Unit 2614

/Fan Tsang/
Supervisory Patent Examiner, Art Unit 2614

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12157092	CHEUNG ET AL.
	Examiner	Art Unit
	PHYLESHA DABNEY	2614

SEARCHED			
Class	Subclass	Date	Examiner
455	575.6, 550.1	5/20/11	pld
381	312, 316, 320, 77, 79	5/20/11	pld

SEARCH NOTES		
Search Notes	Date	Examiner
Plus and Claims search	5/20/11	pld
Text search	5/20/11	pld
Review continuation: 10826527 and related cases: 108265529, 11893835, 10826528	7/30/11	pld
Review IDS	7/31/11	pld
*check issue classification for 381/77 or 455/575.6	7/31/11	pld
Update search	12/17/2011	pld
Review Amendment after allowance	3/21/2012	pld
Review amendment after allowance. IDS considered.	8/9/2012	pld

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner
	same as above	12/29/11	pld

/PHYLESHA DABNEY/ Examiner.Art Unit 2614	

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12157092	CHEUNG ET AL.
	Examiner	**Art Unit**
	PHYLESHA DABNEY	2614

ORIGINAL		INTERNATIONAL CLASSIFICATION										
CLASS	SUBCLASS	CLAIMED					NON-CLAIMED					
381	313	H	0	4	R	25 / 00 (2006.0)						

CROSS REFERENCE(S)					
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
381	77	381	330		
455	569.1				

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

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1		17		33										
	2		18		34										
	3		19		35										
	4		20		36										
	5		21		37										
	6		22		38										
	7		23		39										
	8		24		40										
	9		25		41										
	10		26		42										
	11		27		43										
	12		28		44										
	13		29		45										
	14		30												
	15		31												
	16		32												

/PHYLESHA DABNEY/ Examiner.Art Unit 2614	08/09/2012	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	45	
/FAN TSANG/ Supervisory Patent Examiner.Art Unit 2614	08/13/2012	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /P.D./

Form 1449 (Modified)	Atty. Docket No.	IPVBP002C1
	Application No.:	12/157,092
Information Disclosure	Applicant	CHEUNG et al.
Statement By Applicant	Filing Date	June 6, 2008
	Group	2614
(Use Several Sheets if Necessary)		Page 1 of 1

U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	1.	6,678,381 B1	Jan.-04	Manabe			
	2.	7,016,504 B1	Mar.-06	Shennib			
	3.	7,376,236 B1	May-12	Norris et al.			
	4.	8,208,970 B2	Jun.-12	Cheung et al.			
	5.	2004/0114770 A1	Jun.-04	Pompei			
	6.	2004/0170086 A1	Sep.-04	Mayer et al.			
	7.	2006/0210090 A1	Sep.-06	Shennib			
	8.	2006/0233404 A1	Oct.-06	Croft et al.			
	9.						
	10.						

Foreign Documents

							Translation	
Init.		Document No.	Date	Country	Class	Subclass	Yes	No

Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)

	A	
	B	
	C	
	D	
	E	
	F	
	G	
	H	
	I	
	J	

Examiner	Date Considered
/Phylesha Dabney/	08/09/2012

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT

In re application of: CHEUNG et al.	Attorney Docket No.: IPVBP002C1
Application No.: 12/157,092	Examiner: DABNEY, PHYLESHA LARVINIA
Filed: June 6, 2008	Group: 2655
Title: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS	

REQUEST FOR CONTINUED EXAMINATION (RCE)
(37 CFR §1.114)

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

This is a Request for Continued Examination (RCE) of the above-identified application.

1. **Submission required under 37 C.F.R. §1.114:**

a. ☐ Previously submitted
   i. ☐ Consider the amendment/reply under 37 C.F.R. §1.116 previously filed on _____. *(Any unentered amendment referred to above will be entered.)*
   ii. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____.
   iii. ☐ Other _____.

b. ☒ Enclosed
   i. ☐ Amendment/Reply
   ii. ☐ Affidavit/Declaration
   iii. ☒ Information Disclosure Statement with Form PTO-1449
      ☒ Copies of IDS Citations
   iv. ☐ Other _____.

2. **Fees**: *(The RCE fee is required at the time the RCE is filed.)*

Fee Calculation (37 CFR §1.16)

Fee for Request for Continued Examination Under 37 C.F.R. §1.17(e)	$930 =	$930.00
	TOTAL	$930.00
SMALL ENTITY 50% FILING FEE REDUCTION (if applicable)	$465.00	$465.00

☐ a. Applicant hereby petitions for a month extension of time.

☒ b. Applicant believes that no (additional) extension of time is required; however, if it is determined that such an extension is required, Applicant hereby petitions that such an extension be granted and authorizes the Director to charge the required fees for an extension of time under 37 CFR §1.136 to Deposit Account No. 50-3874 (Order No. IPVBP002C1).

☒ c. Any fees due are being paid electronically herewith.

☒ d. The Director is authorized to charge any fees beyond the amount enclosed which may be required, or to credit any overpayment, to Deposit Account No. 50-3874 (Order No. IPVBP002C1).

3. ☒ Please send correspondence to the following address:

Customer Number 34071

34071

IpVenture, Inc.
5150 El Camino Real, Suite A-22
Los Altos, CA 94022

Please direct any calls to (650) 903-9200, x102.

Date: November 16, 2012

/Peter P. Tong/
Peter P. Tong
Registration No. 35,757

Electronic Patent Application Fee Transmittal	
Application Number:	12157092
Filing Date:	06-Jun-2008
Title of Invention:	DIRECTIONAL HEARING ENHANCEMENT SYSTEMS
First Named Inventor/Applicant Name:	Kwok Wai Cheung
Filer:	Peter P. Tong
Attorney Docket Number:	IPVBP002C1
Filed as Small Entity	

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Request for continued examination	2801	1	465	465
		Total in USD ($)		**465**

Electronic Acknowledgement Receipt	
EFS ID:	14212550
Application Number:	12157092
International Application Number:	
Confirmation Number:	6143
Title of Invention:	DIRECTIONAL HEARING ENHANCEMENT SYSTEMS
First Named Inventor/Applicant Name:	Kwok Wai Cheung
Customer Number:	34071
Filer:	Peter P. Tong
Filer Authorized By:	
Attorney Docket Number:	IPVBP002C1
Receipt Date:	16-NOV-2012
Filing Date:	06-JUN-2008
Time Stamp:	16:52:47
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$465
RAM confirmation Number	4440
Deposit Account	503874
Authorized User	TONG, PETER P
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)	

File Listing:					
Document Number	**Document Description**	**File Name**	**File Size(Bytes)/ Message Digest**	**Multi Part /.zip**	**Pages (if appl.)**
1	Transmittal Letter	IPVBP002C1-IDSTrans-11-12.pdf	20822 4214834d62510339cd198d077b877320aa0173df	no	2
Warnings:					
Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	IPVBP002C1-1449-11-12.pdf	19827 6008fdfc90372398caef4f2773ed9a202b38d8d6	no	1
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
3	Non Patent Literature	ChineseOA_7-5-12.pdf	6549026 ce8d15c617a0333384005ec0702c8b1722d4d544	no	4
Warnings:					
Information:					
4	Non Patent Literature	ChineseOA_10-26-12.pdf	4636825 4c2cfcb1114e1d1f9f4825c5e2bca6b3a5812f49	no	5
Warnings:					
Information:					
5	Request for Continued Examination (RCE)	IPVBP002C1-RCE-11-12.pdf	28906 a745aa6003d0c0bff46f04368f3872b7f6f9c328	no	2
Warnings:					
This is not a USPTO supplied RCE SB30 form.					
Information:					
6	Fee Worksheet (SB06)	fee-info.pdf	30707 0948e09d268c1e4b0b6a05ad01bd1bca4d56b4ae	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	11286113		

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

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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

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

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: CHEUNG et al.	Attorney Docket No.: IPVBP002C1
Application No.: 12/157,092	Examiner: DABNEY, PHYLESHA LARVINIA
Filed: June 6, 2008	Group: 2655
Title: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS	

INFORMATION DISCLOSURE STATEMENT
37 CFR §§1.56 AND 1.97(b)

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

Dear Sir:

The references listed in the attached PTO Form 1449, copies of which are attached, may be material to examination of the above-identified patent application. Applicants submit these references in compliance with their duty of disclosure pursuant to 37 CFR §§1.56 and 1.97. The Examiner is requested to make these references of official record in this application.

This Information Disclosure Statement is not to be construed as a representation that a search has been made, that additional information material to the examination of this application does not exist, or that these references indeed constitute prior art.

This Information Disclosure Statement is: (i) filed within three (3) months of the filing date of the above-referenced application, (ii) believed to be filed before the mailing date of a first Office Action on the merits, or (iii) believed to be filed before the mailing of a first Office Action after the filing of a Request for Continued Examination under §1.114.

Apple Inc. Exhibit 1002 Page 263

Accordingly, it is believed that no fees are due in connection with the filing of this Information Disclosure Statement. However, if it is determined that any fees are due, the Commissioner is hereby authorized to charge such fees to Deposit Account 50-3874 (Order No. IPVBP002C1).

Respectfully submitted,

/Peter P. Tong/

Peter P. Tong
Registration No. 35,757

5150 El Camino Real,
Building A, Ste. 22
Los Altos, CA 94022

Form 1449 (Modified)	Atty. Docket No.	IPVBP002C1
	Application No.:	12/157,092
Information Disclosure Statement By Applicant	Applicant	CHEUNG et al.
	Filing Date	June 6, 2008
	Group	2655
(Use Several Sheets if Necessary)		Page 1 of 1

U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	1.						

Foreign Documents

							Translation	
Init.		Document No.	Date	Country	Class	Subclass	Yes	No

Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)

	A	Office Action for US Application No. 10/826,529, dated January 3, 2007.
	B	Notice of Allowance for US Application No. 10/826,529 dated June 12, 2007.
	C	Supplemental Notice of Allowance for US Application No. 10/826,529, dated July 30, 2007.
	D	Office Action for US Application No. 11/893,835, dated October 21, 2008.
	E	Notice of Allowance for US Application No. 11/893,835, dated May 19, 2009.
	F	Supplemental Notice of Allowance for US Application No. 11/893,835, dated June 8, 2009.
	G	Supplemental Notice of Allowance for US Application No. 11/893,835, dated June 15, 2009.
	H	Office Action for US Patent Application No. 12/462,601, dated November 9, 2011.
	I	Notice of Allowance for US Patent Application No. 12/462,601, dated March 29, 2012.
	J	Fourth Office Action re: CN200480010388.8 Chinese Patent Office, July 25, 2012, 4 pages.
	K	Fifth Office Action re: CN200480010388.8 Chinese Patent Office, October 26, 2012, 5 pages.
	L	Notice of Allowance for US Patent Application No. 10/826,531, dated May 27, 2010.
	M	Advisory Action for US Patent Application No. 10/826,531, dated December 14, 2009.
	N	Advisory Action for US Patent Application No. 10/826,531, dated September 15, 2009.
	O	Office Action for US Patent Application No. 10/826,531, dated July 9, 2009.
	P	Office Action for US Patent Application No. 10/826,531, dated December 31, 2008.
	Q	Advisory Action for US Patent Application No. 10/826,531, dated July 1, 2008.
	R	Office Action for US Patent Application No. 10/826,531, dated April 1, 2008.
	S	Office Action for US Patent Application No. 10/826,531, dated October 23, 2007.

Examiner	Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

UNITED STATES PATENT AND TRADEMARK OFFICE

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

NOTICE OF ALLOWANCE AND FEE(S) DUE

34071 7590 12/06/2012

IPVENTURE, INC.
5150 EL CAMINO REAL
SUITE A-22
LOS ALTOS, CA 94022

EXAMINER
DABNEY, PHYLESHA LARVINIA

ART UNIT	PAPER NUMBER
2655	

DATE MAILED: 12/06/2012

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/157,092	06/06/2008	Kwok Wai Cheung	IPVBP002C1	6143

TITLE OF INVENTION: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$885	$300	$0	$1185	03/06/2013

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PTOL-85 (Rev. 02/11)

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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

34071 7590 12/06/2012

IPVENTURE, INC.
5150 EL CAMINO REAL
SUITE A-22
LOS ALTOS, CA 94022

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/157,092	06/06/2008	Kwok Wai Cheung	IPVBP002C1	6143

TITLE OF INVENTION: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$885	$300	$0	$1185	03/06/2013

EXAMINER	ART UNIT	CLASS-SUBCLASS
DABNEY, PHYLESHA LARVINIA	2655	381-313000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

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

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

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

4a. The following fee(s) are submitted:

❑ Issue Fee

❑ Publication Fee (No small entity discount permitted)

❑ Advance Order - # of Copies _____

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

❑ A check is enclosed.

❑ Payment by credit card. Form PTO-2038 is attached.

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

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

❑ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

❑ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/157,092	06/06/2008	Kwok Wai Cheung	IPVBP002C1	6143

34071 7590 12/06/2012

IPVENTURE, INC.
5150 EL CAMINO REAL
SUITE A-22
LOS ALTOS, CA 94022

EXAMINER	
DABNEY, PHYLESHA LARVINIA	
ART UNIT	**PAPER NUMBER**
2655	

DATE MAILED: 12/06/2012

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

The Patent Term Adjustment to date is 727 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 727 day(s).

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

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

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Privacy Act Statement

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

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

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

Notice of Allowability	Application No.	Applicant(s)	
	12/157,092	CHEUNG ET AL.	
	Examiner	Art Unit	
	PHYLESHA DABNEY	2655	

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

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *11/16/2012*.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are *1-45*.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/PHYLESHA DABNEY/
Examiner, Art Unit 2655

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 16 November 2012 has been entered. Claims **1-45** are pending.

Reasons for Allowance

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

The prior art of records fails to a hearing enhancement system for a user, comprising: an audio system configured to receive input signals for broadcasting, and configured to up-convert the received input signals into up-converted signals to be wirelessly transmitted;
a wireless receiver configured to wirelessly receive the up-converted signals; a down-converter configured to down-convert the received up-converted signals into down-converted signals;
a modifier configured to modify the down-converted signals into modified signals based on at least one hearing characteristic of the user to enhance the hearing of the user; and a speaker configured to generate audio output signals from the modified signals for the user as substantially described and connected with the functional language of the recited claims.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHYLESHA DABNEY whose telephone number is (571)272-7494. The examiner can normally be reached on Monday through Wednesday and Friday 10:30-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Davetta W. Goins can be reached on 571-272-2957. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any response to this action should be mailed to:
Commissioner of Patents and Trademarks
P O Box 1450
Alexandria, VA 22313-1450

Or faxed to:
(703) 273-8300, for formal communications intended for entry and for informal or draft communications, please label "Proposed" or "Draft" when submitting an informal amendment.

Hand-delivered responses should be brought to:
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

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.

November 29, 2012

/PHYLESHA DABNEY/
Examiner, Art Unit 2655

/Fan Tsang/
Supervisory Patent Examiner, Art Unit 2653

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /P.D./

Form 1449 (Modified)	Atty. Docket No.	IPVBP002C1
	Application No.:	12/157,092
Information Disclosure	Applicant	CHEUNG et al.
Statement By Applicant	Filing Date	June 6, 2008
	Group	2655
(Use Several Sheets if Necessary)		Page 1 of 1

U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	1.						

Foreign Documents

							Translation	
Init.		Document No.	Date	Country	Class	Subclass	Yes	No

Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)

	A	Office Action for US Application No. 10/826,529, dated January 3, 2007.
	B	Notice of Allowance for US Application No. 10/826,529 dated June 12, 2007.
	C	Supplemental Notice of Allowance for US Application No. 10/826,529, dated July 30, 2007.
	D	Office Action for US Application No. 11/893,835, dated October 21, 2008.
	E	Notice of Allowance for US Application No. 11/893,835, dated May 19, 2009.
	F	Supplemental Notice of Allowance for US Application No. 11/893,835, dated June 8, 2009.
	G	Supplemental Notice of Allowance for US Application No. 11/893,835, dated June 15, 2009.
	H	Office Action for US Patent Application No. 12/462,601, dated November 9, 2011.
	I	Notice of Allowance for US Patent Application No. 12/462,601, dated March 29, 2012.
	J	Fourth Office Action re: CN200480010388.8 Chinese Patent Office, July 25, 2012, 4 pages.
	K	Fifth Office Action re: CN200480010388.8 Chinese Patent Office, October 26, 2012, 5 pages.
	L	Notice of Allowance for US Patent Application No. 10/826,531, dated May 27, 2010.
	M	Advisory Action for US Patent Application No. 10/826,531, dated December 14, 2009.
	N	Advisory Action for US Patent Application No. 10/826,531, dated September 15, 2009.
	O	Office Action for US Patent Application No. 10/826,531, dated July 9, 2009.
	P	Office Action for US Patent Application No. 10/826,531, dated December 31, 2008.
	Q	Advisory Action for US Patent Application No. 10/826,531, dated July 1, 2008.
	R	Office Action for US Patent Application No. 10/826,531, dated April 1, 2008.
	S	Office Action for US Patent Application No. 10/826,531, dated October 23, 2007.

Examiner	Date Considered
/Phylesha Dabney/	11/29/2012

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12157092	CHEUNG ET AL.
	Examiner	**Art Unit**
	PHYLESHA DABNEY	2655

ORIGINAL		INTERNATIONAL CLASSIFICATION										
CLASS	SUBCLASS	CLAIMED					NON-CLAIMED					
381	313	H	0	4	R	25 / 00 (2006.0)						

CROSS REFERENCE(S)					
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
381	77	381	330		
455	569.1				

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

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1		17		33										
	2		18		34										
	3		19		35										
	4		20		36										
	5		21		37										
	6		22		38										
	7		23		39										
	8		24		40										
	9		25		41										
	10		26		42										
	11		27		43										
	12		28		44										
	13		29		45										
	14		30												
	15		31												
	16		32												

/PHYLESHA DABNEY/ Examiner.Art Unit 2655	11/29/2012	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	45	
/FAN TSANG/ Supervisory Patent Examiner.Art Unit 2614	08/13/2012	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12157092	CHEUNG ET AL.
	Examiner	Art Unit
	PHYLESHA DABNEY	2655

SEARCHED			
Class	Subclass	Date	Examiner
455	575.6, 550.1	5/20/11	pld
381	312, 316, 320, 77, 79	5/20/11	pld

SEARCH NOTES		
Search Notes	Date	Examiner
Plus and Claims search	5/20/11	pld
Text search	5/20/11	pld
Review continuation: 10826527 and related cases: 108265529, 11893835, 10826528	7/30/11	pld
Review IDS	7/31/11	pld
*check issue classification for 381/77 or 455/575.6	7/31/11	pld
Update search	12/17/2011	pld
Review Amendment after allowance	3/21/2012	pld
Review amendment after allowance. IDS considered.	8/9/2012	pld
IDs submission	11/29/2012	pld

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner
	same as above	12/29/11	pld

/PHYLESHA DABNEY/ Examiner.Art Unit 2655	

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT

In re application of: CHEUNG et al.	Attorney Docket No.: IPVBP002C1
Application No.: 12/157,092	Examiner: DABNEY, PHYLESHA LARVINIA
Filed: June 6, 2008	Group: 2655
Title: HEARING ENHANCEMENT SYSTEMS	

REQUEST FOR CONTINUED EXAMINATION (RCE) (37 CFR §1.114)

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

This is a Request for Continued Examination (RCE) of the above-identified application.

1. **Submission required under 37 C.F.R. §1.114:**

a. ☐ Previously submitted
   i. ☐ Consider the amendment/reply under 37 C.F.R. §1.116 previously filed on _____. *(Any unentered amendment referred to above will be entered.)*
   ii. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____.
   iii. ☐ Other _____.

b. ☒ Enclosed
   i. ☒ Amendment/Reply
   ii. ☐ Affidavit/Declaration
   iii. ☒ Information Disclosure Statement with Form PTO-1449
      ☐ Copies of IDS Citations
   iv. ☐ Other _____.

2. **Fees**: *(The RCE fee is required at the time the RCE is filed.)*

Fee Calculation (37 CFR §1.16)

Fee for Request for Continued Examination Under 37 C.F.R. §1.17(e)	$930 =	$930.00
	TOTAL	$930.00
SMALL ENTITY 50% FILING FEE REDUCTION (if applicable)	$465.00	**$465.00**

☐ a. Applicant hereby petitions for a month extension of time.

☒ b. Applicant believes that no (additional) extension of time is required; however, if it is determined that such an extension is required, Applicant hereby petitions that such an extension be granted and authorizes the Director to charge the required fees for an extension of time under 37 CFR §1.136 to Deposit Account No. 50-3874 (Order No. IPVBP002C1).

☒ c. Any fees due are being paid electronically herewith.

☒ d. The Director is authorized to charge any fees beyond the amount enclosed which may be required, or to credit any overpayment, to Deposit Account No. 50-3874 (Order No. IPVBP002C1).

3. ☒ Please send correspondence to the following address:

Customer Number 34071

34071

IpVenture, Inc.
5150 El Camino Real, Suite A-22
Los Altos, CA 94022

Please direct any calls to (650) 903-9200, x102.

Date: March 4, 2013

/Peter P. Tong/
Peter P. Tong
Registration No. 35,757

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: CHEUNG et al.	Attorney Docket No.: IPVBP002C1
Application No.: 12/157,092	Examiner: DABNEY, PHYLESHA LARVINIA
Filed: June 6, 2008	Group: 2655
Title: HEARING ENHANCEMENT SYSTEMS	

AMENDMENT D TRANSMITTAL

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

Sir:

Transmitted herewith is an Amendment in the above-identified application.

The fee has been calculated as shown below.

	Claims After Amendment		Highest Previously Paid For	Present Extra	Small Entity Rate Fee	Large Entity Rate Fee
Total Claims	62	MINUS	45	17	x 31 = 527	x 62 =
Independent Claims	2	MINUS	3	00	x 125 =	x 250 =
Multiple Dependent Claim Present and Fee Not Previously Paid					$	$
				Total	$527.00	$

☐ Applicant(s) hereby petition for a _____- month extension(s) of time to respond to the aforementioned Office Action.

☒ Applicant(s) believe that no (additional) Extension of Time is required; however, if it is determined that such an extension is required, Applicant(s) hereby petition that such an extension be granted and authorize the Commissioner to charge the required fees for an Extension of Time under 37 CFR 1.136 to Deposit Account No. 50-3874 (Order No. IPVBP002C1).

☒ Any fees due are being paid electronically herewith.

☒ Please charge any additional fees required to facilitate filing the enclosed response, to Deposit Account No. 50-3874 (Order No.IPVBP002C1).

Respectfully submitted,

/Peter P. Tong/

Peter P. Tong
Reg. No. 35,757

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: CHEUNG et al.	Attorney Docket No.: IPVBP002C1
Application No.: 12/157,092	Examiner: DABNEY, PHYLESHA LARVINIA
Filed: June 6, 2008	Group: 2655
Title: HEARING ENHANCEMENT SYSTEMS	

AMENDMENT D

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

Dear Sir:

In response to the Notice of Allowance dated December 6, 2012, please amend the above-identified patent application as follows:

Amendments to the Specification are reflected on page 2 of this paper.
Amendments to the Claims are reflected in the listing of claims which begins on page 3 of this paper.
Remarks/Arguments are reflected on page 13 of this paper.

Amendments to the Specification:

Please **ADD** paragraph [0097.5] of the specification following paragraph [0097.4], as follows:

[0097.5] In one embodiment, signals driving a speaker in a system of the present invention can be modified based upon user information stored in the system. As such, the audio sound being produced by the speaker can be customized for (or personalized to) the user. For example, when the user information pertains to user preferences of the user, the audio output by the speaker is customized for the user preferences of the user.

Amendments to the Claims:

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

Listing of Claims:

1. (Original) A hearing enhancement system for a user, comprising:

an audio system configured to receive input signals for broadcasting, and configured to up-convert the received input signals into up-converted signals to be wirelessly transmitted;

a wireless receiver configured to wirelessly receive the up-converted signals;

a down-converter configured to down-convert the received up-converted signals into down-converted signals;

a modifier configured to modify the down-converted signals into modified signals based on at least one hearing characteristic of the user to enhance the hearing of the user; and

a speaker configured to generate audio output signals from the modified signals for the user.

2. (Original) A hearing enhancement system as recited in claim 1, wherein the up-converted signals are in the WiFi frequency band.

3. (Original) A hearing enhancement system as recited in claim 1, wherein the audio system is selected from the list consisting a television, a stereo system, a CD player and a radio.

4. (Previously presented) A hearing enhancement system as recited in claim 1, wherein the audio system is a phone.

5. (Original) A hearing enhancement system as recited in claim 1, wherein the audio system receives the input signals from a microphone.

6. (Original) A hearing enhancement system as recited in claim 1, wherein the down-converted signals are modified such that a portion of the audio output signals has an increased power to enhance the hearing of the user.

7. (Original) A hearing enhancement system as recited in claim 6,

wherein the portion with increased power is selected based on frequency, and

wherein a higher frequency portion has increased power.

8. (Original) A hearing enhancement system as recited in claim 1,

wherein the at least one hearing characteristic of the user is determined via calibrating the user's hearing,

wherein the power of the audio output signals can be changed as a function of frequency, and

wherein the user can change the power of the audio output signals.

9. (Original) A hearing enhancement system as recited in claim 1, wherein the speaker is configured to generate ultrasonic signals, with at least a portion of the ultrasonic signals transformed into the audio output signals in air.

10. (Currently amended) A hearing enhancement apparatus for a user, the apparatus being wirelessly coupled to an audio system, which is configured ~~to receive input signals for broadcasting, and configured~~ to up-convert ~~the received~~ input signals into up-converted signals to be wirelessly transmitted, the apparatus comprising:

a wireless receiver configured to wirelessly receive the up-converted signals;

a down-converter configured to down-convert the received up-converted signals into down-converted signals;

a modifier configured to modify the down-converted signals into modified signals based on at least one hearing characteristic of the user to enhance the hearing of the user; and

a speaker configured to generate audio output signals from the modified signals for the user.

11. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the down-converted signals are modified such that a portion of the audio output signals has an increased power to enhance the hearing of the user.

12. (Original) A hearing enhancement apparatus as recited in claim 11,

wherein the portion with the increased power is selected based on frequency,

wherein a higher frequency portion has increased power,

wherein the at least one hearing characteristic of the user is determined via calibrating the user's hearing,

wherein the power of the audio output signals can be changed as a function of frequency, and

wherein the user can change the power of the audio output signals.

13. (Original) A hearing enhancement apparatus as recited in claim 12, wherein the down-converted signals are further modified based on the noise level of the environment of the apparatus.

14. (Previously presented) A hearing enhancement apparatus as recited in claim 13, wherein the apparatus is also configured to operate as at least a part of a phone.

15. (Original) A hearing enhancement apparatus as recited in claim 11, wherein the portion with increased power is selected based on frequency, and

wherein a higher frequency portion has increased power.

16. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the up-converted signals are in the WiFi frequency band.

17. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the at least one hearing characteristic of the user is determined via calibrating the user's hearing,

wherein the power of the audio output signals can be changed as a function of frequency, and

wherein the user can change the power of the audio output signals.

18. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the speaker is configured to generate ultrasonic signals, with at least a portion of the ultrasonic signals transformed into the audio output signals in air.

19. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the down-converted signals are further modified based on the noise level of the environment of the apparatus.

20. (Previously presented) A hearing enhancement apparatus as recited in claim 10, wherein the apparatus is also configured to operate as at least a part of a phone.

21. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the at least one hearing characteristic of the user is wirelessly received and stored in the hearing enhancement apparatus.

22. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the at least one hearing characteristic of the user is retrieved from a portable media storage device while being physically in contact with the apparatus.

23. (Original) A hearing enhancement system as recited in claim 1, wherein the speaker is a directional speaker.

24. (Original) A hearing enhancement system as recited in claim 1, wherein the speaker is an ear speaker.

25. (Original) A hearing enhancement system as recited in claim 1, wherein the speaker is in a headset.

26. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the speaker is a directional speaker.

27. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the speaker is an ear speaker.

28. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the speaker is in a headset.

29. (Previously presented) A hearing enhancement apparatus as recited in claim 10,

wherein the audio system is configured to operate as a phone,

wherein the hearing enhancement apparatus is configured to operate in conjunction with or at least as a part of a mobile phone,

wherein the speaker is an ear speaker, and

wherein to enhance the hearing of the user, the modifier is configured to modify the down-converted signals into modified signals at one or more frequencies within the audio frequencies, with the one or more frequencies being determined by the at least one hearing characteristic of the user.

30. (Previously presented) A hearing enhancement apparatus as recited in claim 29,

wherein the at least one hearing characteristic of the user is determined via calibrating the user's hearing at least across the one or more frequencies to generate at least a portion of the hearing profile of the user, and

wherein the hearing profile is stored in the hearing enhancement apparatus.

31. (Previously presented) A hearing enhancement apparatus as recited in claim 30, wherein the hearing enhancement apparatus allows the user to calibrate the user's hearing via a computing device.

32. (Previously presented) A hearing enhancement apparatus as recited in claim 30, wherein the hearing enhancement apparatus is configured to periodically remind the user to calibrate the user's hearing.

33. (Previously presented) A hearing enhancement apparatus as recited in claim 30, wherein at least a portion of the at least one hearing characteristic of the user is wirelessly received by and stored in the hearing enhancement apparatus.

34. (Previously presented) A hearing enhancement apparatus as recited in claim 33, wherein the hearing enhancement apparatus is a headset.

35. (Previously presented) A hearing enhancement apparatus as recited in claim 33, wherein the hearing enhancement apparatus is a computing device that is wearable.

36. (Previously presented) A hearing enhancement apparatus as recited in claim 33, wherein the hearing enhancement apparatus is a mobile phone.

37. (Previously presented) A hearing enhancement apparatus as recited in claim 36, wherein the hearing enhancement apparatus is configured to periodically remind the user to calibrate the user's hearing.

38. (Previously presented) A hearing enhancement apparatus as recited in claim 36, wherein the hearing enhancement apparatus includes a user control configured to allow the user to control the power of the audio output signals on a plurality of frequency bands across the audio frequencies.

39. (Previously presented) A hearing enhancement apparatus as recited in claim 29, wherein at least a portion of the at least one hearing characteristic is wirelessly received by and stored in the hearing enhancement apparatus.

40. (Previously presented) A hearing enhancement apparatus as recited in claim 39, wherein the hearing enhancement apparatus is a headset.

41. (Previously presented) A hearing enhancement apparatus as recited in claim 39, wherein the hearing enhancement apparatus is a computing device that is wearable.

42. (Previously presented) A hearing enhancement apparatus as recited in claim 39, wherein the hearing enhancement apparatus is a mobile phone.

43. (Previously presented) A hearing enhancement apparatus as recited in claim 29, wherein the hearing enhancement apparatus is configured to alter a power level of the audio output signals based on a noise level of the environment of the apparatus.

44. (Previously presented) A hearing enhancement apparatus as recited in claim 43,

wherein the hearing enhancement apparatus is configured to increase the power of the audio output signals as the noise level increases, and

wherein the hearing enhancement apparatus is configured not to further increase the power of the audio output signals if the noise level is beyond a certain predetermined threshold.

45. (Previously presented) A hearing enhancement apparatus as recited in claim 29, wherein the apparatus includes a volume control that is configured to respond to a voice command of the user.

46. (New) A hearing enhancement apparatus as recited in claim 10, wherein the hearing enhancement apparatus is a headset.

47. (New) A hearing enhancement apparatus as recited in claim 46, wherein the speaker is an ear speaker.

48. (New) A hearing enhancement apparatus as recited in claim 47, wherein the audio output signals are changed in view of a preference of the user stored in the apparatus.

49. (New) A hearing enhancement apparatus as recited in claim 48, wherein the audio output signals are changed based on audio sound in the environment of the apparatus.

50. (New) A hearing enhancement apparatus as recited in claim 49 further comprising a microphone at least for receiving the audio sound in the environment of the apparatus.

51. (New) A hearing enhancement apparatus as recited in claim 50, wherein the microphone is a directional microphone.

52. (New) A hearing enhancement apparatus as recited in claim 46, wherein the audio output signals are changed in view of a preference of the user stored in the apparatus.

53. (New) A hearing enhancement apparatus as recited in claim 46, wherein the audio output signals are changed based on audio sound in the environment of the apparatus.

54. (New) A hearing enhancement apparatus as recited in claim 53 further comprising a microphone at least for receiving the audio sound in the environment of the apparatus.

55. (New) A hearing enhancement apparatus as recited in claim 10, wherein the hearing enhancement apparatus is a mobile phone.

56. (New) A hearing enhancement apparatus as recited in claim 55, wherein the audio output signals are modified in view of a preference of the user stored in the apparatus.

57. (New) A hearing enhancement apparatus as recited in claim 56, wherein the audio output signals are modified based on audio sound in the environment of the apparatus.

58. (New) A hearing enhancement apparatus as recited in claim 57 further comprising a microphone at least for receiving the audio sound in the environment of the apparatus.

59. (New) A hearing enhancement apparatus as recited in claim 58, wherein the microphone is a directional microphone.

60. (New) A hearing enhancement apparatus as recited in claim 55, wherein the audio output signals are modified in view of a preference of the user stored in the apparatus.

61. (New) A hearing enhancement apparatus as recited in claim 55, wherein the audio output signals are modified based on audio sound in the environment of the apparatus.

62. (New) A hearing enhancement apparatus as recited in claim 61 further comprising a microphone at least for receiving the audio sound in the environment of the apparatus.

REMARKS

Applicants previously presented claims 1 through 45 for examination. In the above-identified Notice of Allowance, the Examiner has allowed all the claims, which Applicants acknowledge with gratitude. By this amendment, Applicants have presented minor amendments to claim 10; and have added dependent claims 46-62. Accordingly, claims 1-62 are pending.

Applicants have added paragraph 97.5 to the specification. The addition is supported, for example, by paragraphs 33-34 of U.S. Patent Application No. 10/826,528, entitled, "METHOD AND APPARATUS FOR WIRELESS AUDIO DELIVERY," which was previously incorporated by reference. Thus no new matter has been introduced.

Reconsideration of the application and an early Notice of Allowance are earnestly solicited. If there are any issues remaining which the Examiner believes could be resolved through either a Supplemental Response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned representative at the telephone number listed below.

Respectfully submitted,

5150 El Camino Real
Building A, Suite 22
Los Altos, CA 94022
(650) 903-9200 ext 102

By: /Peter P. Tong/
Peter P. Tong
Registration No.: 35,757

Apple Inc. Exhibit 1002 Page 292

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: CHEUNG et al.	Attorney Docket No.: IPVBP002C1
Application No.: 12/157,092	Examiner: DABNEY, PHYLESHA LARVINIA
Filed: June 6, 2008	Group: 2655
Title: HEARING ENHANCEMENT SYSTEMS	

INFORMATION DISCLOSURE STATEMENT
37 CFR §§1.56 AND 1.97(b)

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

Dear Sir:

The references listed in the attached PTO Form 1449, copies of which are attached, may be material to examination of the above-identified patent application. Applicants submit these references in compliance with their duty of disclosure pursuant to 37 CFR §§1.56 and 1.97. The Examiner is requested to make these references of official record in this application.

This Information Disclosure Statement is not to be construed as a representation that a search has been made, that additional information material to the examination of this application does not exist, or that these references indeed constitute prior art.

This Information Disclosure Statement is: (i) filed within three (3) months of the filing date of the above-referenced application, (ii) believed to be filed before the mailing date of a first Office Action on the merits, or (iii) believed to be filed before the mailing of a first Office Action after the filing of a Request for Continued Examination under §1.114.

Accordingly, it is believed that no fees are due in connection with the filing of this Information Disclosure Statement. However, if it is determined that any fees are due, the Commissioner is hereby authorized to charge such fees to Deposit Account 50-3874 (Order No. IPVBP002C1).

Respectfully submitted,

/Peter P. Tong/

Peter P. Tong
Registration No. 35,757

5150 El Camino Real,
Building A, Ste. 22
Los Altos, CA 94022

Apple Inc. Exhibit 1002 Page 294

Form 1449 (Modified)	Atty. Docket No.	IPVBP002C1
	Application No.:	12/157,092
Information Disclosure	Applicant	CHEUNG et al.
Statement By Applicant	Filing Date	June 6, 2008
	Group	2655
(Use Several Sheets if Necessary)		Page 1 of 1

U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	1.						
	2.						
	3.						
	4.						
	5.						
	6.						

Foreign Documents

							Translation	
Init.		Document No.	Date	Country	Class	Subclass	Yes	No

Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)

	A	Office Action for US Patent Application No. 10/826,537, dated July 16, 2010.
	B	Office Action for US Patent Application No. 10/826,537, dated November 25, 2009.
	C	Office Action for US Patent Application No. 10/826,537, dated April 28, 2009.
	D	Office Action for US Patent Application No. 10/826,537, dated November 18, 2008.
	E	Office Action for US Patent Application No. 10/826,537, dated May 2, 2008.
	F	Office Action for US Patent Application No. 10/826,537, dated February 22, 2008.
	G	Office Action for US Patent Application No. 10/826,537, dated October 29, 2007.
	H	Office Action for US Patent Application No. 10/826,528, dated February 25, 2009.
	I	Office Action for US Patent Application No. 10/826,528, dated September 17, 2008.
	J	Office Action for US Patent Application No. 10/826,528, dated May 14, 2008.
	K	Office Action for US Patent Application No. 10/826,528, dated October 18, 2007.

Examiner	Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Electronic Patent Application Fee Transmittal

Application Number:	12157092
Filing Date:	06-Jun-2008
Title of Invention:	DIRECTIONAL HEARING ENHANCEMENT SYSTEMS
First Named Inventor/Applicant Name:	Kwok Wai Cheung
Filer:	Peter P. Tong/Angela Nijim
Attorney Docket Number:	IPVBP002C1

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Claims in excess of 20	2202	17	31	527
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Request for Continued Examination	2801	1	465	465
		Total in USD ($)		**992**

Electronic Acknowledgement Receipt	
EFS ID:	15117130
Application Number:	12157092
International Application Number:	
Confirmation Number:	6143
Title of Invention:	DIRECTIONAL HEARING ENHANCEMENT SYSTEMS
First Named Inventor/Applicant Name:	Kwok Wai Cheung
Customer Number:	34071
Filer:	Peter P. Tong/Angela Nijim
Filer Authorized By:	Peter P. Tong
Attorney Docket Number:	IPVBP002C1
Receipt Date:	05-MAR-2013
Filing Date:	06-JUN-2008
Time Stamp:	11:41:54
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$992
RAM confirmation Number	11910
Deposit Account	503874
Authorized User	TONG, PETER P
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees) Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Continued Examination (RCE)	IPVBP002C1-RCE-3-13.pdf	29483 856b0b193450e7a98a94becbfd41d3eff1af72f5	no	2
Warnings:					
This is not a USPTO supplied RCE SB30 form.					
Information:					
2	Miscellaneous Incoming Letter	IPVBP002C1-AmdDTrans-3-13.pdf	17212 8431382bf7d78b78c89e73defe61ab34d38d15ce	no	1
Warnings:					
Information:					
3	Amendment Submitted/Entered with Filing of CPA/RCE	IPVBP002C1-AmdD-asfiled-3-13.pdf	49589 7a0d709a2e06d9666d64b7722fa6bd4379910c99	no	13
Warnings:					
Information:					
4	Transmittal Letter	IPVBP002C1-IDSTrans-3-13.pdf	20777 6bd697ac4236996d38f73b43c84b32d3fec16807	no	2
Warnings:					
Information:					
5	Information Disclosure Statement (IDS) Form (SB08)	IPVBP002C1-1449-3-13.pdf	19661 2071eb59145ebc774e41978d7491b7cb37963195	no	1
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
6	Fee Worksheet (SB06)	fee-info.pdf	32539 219cc7376ea50febadc19ff818475f06336ac822	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	169261		

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

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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

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

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
12/157,092	06/06/2008	

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☒		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	03/05/2013	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 62	Minus	** 45	= 17	X $31 =	527	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 2	Minus	***3	= 0	X $125 =	0	OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE	527	OR	TOTAL ADD'L FEE	

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

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/MARCIA GORDON/

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.

UNITED STATES PATENT AND TRADEMARK OFFICE

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

NOTICE OF ALLOWANCE AND FEE(S) DUE

34071 7590 03/27/2013

IPVENTURE, INC.
5150 EL CAMINO REAL
SUITE A-22
LOS ALTOS, CA 94022

EXAMINER
DABNEY, PHYLESHA LARVINIA

ART UNIT	PAPER NUMBER
2655	

DATE MAILED: 03/27/2013

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/157,092	06/06/2008	Kwok Wai Cheung	IPVBP002C1	6143

TITLE OF INVENTION: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$890	$300	$0	$1190	06/27/2013

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

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

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

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

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

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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

34071 7590 03/27/2013
IPVENTURE, INC.
5150 EL CAMINO REAL
SUITE A-22
LOS ALTOS, CA 94022

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/157,092	06/06/2008	Kwok Wai Cheung	IPVBP002C1	6143

TITLE OF INVENTION: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$890	$300	$0	$1190	06/27/2013

EXAMINER	ART UNIT	CLASS-SUBCLASS
DABNEY, PHYLESHA LARVINIA	2655	381-313000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

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

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

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

4a. The following fee(s) are submitted:

❑ Issue Fee

❑ Publication Fee (No small entity discount permitted)

❑ Advance Order - # of Copies _____

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

❑ A check is enclosed.

❑ Payment by credit card. Form PTO-2038 is attached.

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

Apple Inc. Exhibit 1002 Page 303

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

❑ Applicant certifying micro entity status. See 37 CFR 1.29

NOTE: Absent a valid certification of Micro Entity Status (see form PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

❑ Applicant asserting small entity status. See 37 CFR 1.27

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

❑ Applicant changing to regular undiscounted fee status.

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

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/157,092	06/06/2008	Kwok Wai Cheung	IPVBP002C1	6143

34071 7590 03/27/2013

IPVENTURE, INC.
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LOS ALTOS, CA 94022

EXAMINER	
DABNEY, PHYLESHA LARVINIA	
ART UNIT	**PAPER NUMBER**
2655	

DATE MAILED: 03/27/2013

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

The Patent Term Adjustment to date is 727 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 727 day(s).

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

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

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Privacy Act Statement

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

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

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

Notice of Allowability	Application No.	Applicant(s)	
	12/157,092	CHEUNG ET AL.	
	Examiner	Art Unit	
	PHYLESHA DABNEY	2655	

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

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *3/5/2013*.

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

3. ☒ The allowed claim(s) is/are *1-62*. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov .

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

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

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

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

Attachment(s)

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

/PHYLESHA DABNEY/
Examiner, Art Unit 2655

DETAILED ACTION

This action is in response to the Terminal Disclaimer received 5 March 2013. Claims **1-62** are pending.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 3/5/2013 was filed after the mailing date of the Notice of Allowance on 12/6/2012. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Reasons for Allowance

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

The limitations claims in the patent application (7388962) are broader than the scope of the claims in the present application.

Furthermore, the prior art of records fails to a hearing enhancement system for a user, comprising: an audio system configured to receive input signals for broadcasting, and configured to up-convert the received input signals into up-converted signals to be wirelessly transmitted; a wireless receiver configured to wirelessly receive the up-converted signals; a down-converter configured to down-convert the received up-converted signals into down-converted signals; a modifier configured to modify the down-converted signals into modified signals based on at least one hearing characteristic of the user to enhance the hearing of the user; and a speaker

configured to generate audio output signals from the modified signals for the user as substantially described and connected with the functional language of the recited claims.

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

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHYLESHA DABNEY whose telephone number is (571)272-7494. The examiner can normally be reached on Monday through Wednesday and Friday 10:30-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Davetta W. Goins can be reached on 571-272-2957. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any response to this action should be mailed to:
Commissioner of Patents and Trademarks
P O Box 1450
Alexandria, VA 22313-1450

Or faxed to:
(703) 273-8300, for formal communications intended for entry and for informal or draft communications, please label "Proposed" or "Draft" when submitting an informal amendment.

Hand-delivered responses should be brought to:
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

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.

March 19, 2013

/PHYLESHA DABNEY/
Examiner, Art Unit 2655

/DAVETTA W. GOINS/
Supervisory Patent Examiner, Art Unit 2655

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /P.D./

Form 1449 (Modified)	Atty. Docket No.	IPVBP002C1
	Application No.:	12/157,092
Information Disclosure Statement By Applicant	Applicant	CHEUNG et al.
	Filing Date	June 6, 2008
	Group	2655
(Use Several Sheets if Necessary)		Page 1 of 1

U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	1.						
	2.						
	3.						
	4.						
	5.						
	6.						

Foreign Documents

							Translation	
Init.		Document No.	Date	Country	Class	Subclass	Yes	No

Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)

	A	Office Action for US Patent Application No. 10/826,537, dated July 16, 2010.
	B	Office Action for US Patent Application No. 10/826,537, dated November 25, 2009.
	C	Office Action for US Patent Application No. 10/826,537, dated April 28, 2009.
	D	Office Action for US Patent Application No. 10/826,537, dated November 18, 2008.
	E	Office Action for US Patent Application No. 10/826,537, dated May 2, 2008.
	F	Office Action for US Patent Application No. 10/826,537, dated February 22, 2008.
	G	Office Action for US Patent Application No. 10/826,537, dated October 29, 2007.
	H	Office Action for US Patent Application No. 10/826,528, dated February 25, 2009.
	I	Office Action for US Patent Application No. 10/826,528, dated September 17, 2008.
	J	Office Action for US Patent Application No. 10/826,528, dated May 14, 2008.
	K	Office Action for US Patent Application No. 10/826,528, dated October 18, 2007.

Examiner	Date Considered
/Phylesha Dabney/	03/19/2013

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /P.D./

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12157092	CHEUNG ET AL.
	Examiner	**Art Unit**
	PHYLESHA DABNEY	2655

CPC		
Symbol	**Type**	**Version**

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

US ORIGINAL CLASSIFICATION		INTERNATIONAL CLASSIFICATION									
CLASS	**SUBCLASS**	**CLAIMED**					**NON-CLAIMED**				
381	313	H	0	4	R	25 / 00 (2006.01.01)					
CROSS REFERENCE(S)											
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**										
381	77	381	330								
455	569.1										

/PHYLESHA DABNEY/ Examiner.Art Unit 2655 (Assistant Examiner)	03/19/2013 (Date)	**Total Claims Allowed:** 62
/DAVETTA W GOINS/ Supervisory Patent Examiner.Art Unit 2655 (Primary Examiner)	03/23/2013 (Date)	O.G. Print Claim(s) 1 O.G. Print Figure 1

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12157092	CHEUNG ET AL.
	Examiner	**Art Unit**
	PHYLESHA DABNEY	2655

/PHYLESHA DABNEY/ Examiner.Art Unit 2655	03/19/2013	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	62	
/DAVETTA W GOINS/ Supervisory Patent Examiner.Art Unit 2655	03/23/2013	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12157092	CHEUNG ET AL.
	Examiner	**Art Unit**
	PHYLESHA DABNEY	2655

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

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1		17		33										
	2		18		34										
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	15		31												
	16		32												

/PHYLESHA DABNEY/ Examiner.Art Unit 2655	03/19/2013	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	62	
/DAVETTA W GOINS/ Supervisory Patent Examiner.Art Unit 2655	03/23/2013	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12157092	CHEUNG ET AL.
	Examiner	Art Unit
	PHYLESHA DABNEY	2655

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
455	575.6, 550.1	5/20/11	pld
381	312, 316, 320, 77, 79	5/20/11	pld

SEARCH NOTES		
Search Notes	Date	Examiner
Plus and Claims search	5/20/11	pld
Text search	5/20/11	pld
Review continuation: 10826527 and related cases: 108265529, 11893835, 10826528	7/30/11	pld
Review IDS	7/31/11	pld
*check issue classification for 381/77 or 455/575.6	7/31/11	pld
Update search	12/17/2011	pld
Review Amendment after allowance	3/21/2012	pld
Review amendment after allowance. IDS considered.	8/9/2012	pld
IDs submission	11/29/2012	pld
IDS submission	3/5/2013	pld

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

/PHYLESHA DABNEY/ Examiner.Art Unit 2655	

INTERFERENCE SEARCH			
US Class/ CPC Symbol	**US Subclass / CPC Group**	**Date**	**Examiner**
	same as above	12/29/11	pld

/PHYLESHA DABNEY/ Examiner.Art Unit 2655	

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

PTO/SB/30EFS (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
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REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	12157092	Filing Date	2008-06-06	Docket Number (if applicable)	IPVBP002C1	Art Unit	2655
First Named Inventor	KWOK WAI CHEUNG			Examiner Name	DABNEY, PHYLESHA LARVINIA		

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 order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

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

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

☐ Other _____

☒ Enclosed

☒ Amendment/Reply

☐ Information Disclosure Statement (IDS)

☐ Affidavit(s)/ Declaration(s)

☐ Other _____

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 503874

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

☐ Applicant Signature

PTO/SB/30EFS (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
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Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Signature of Registered U.S. Patent Practitioner			
Signature	/Peter P. Tong/	Date (YYYY-MM-DD)	2013-06-14
Name	Peter P. Tong	Registration Number	35757

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

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

Privacy Act Statement

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

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

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

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

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

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

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

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

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

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

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

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: CHEUNG et al.	Attorney Docket No.: IPVBP002C1
Application No.: 12/157,092	Examiner: DABNEY, PHYLESHA LARVINIA
Filed: June 6, 2008	Group: 2655
Title: HEARING ENHANCEMENT SYSTEMS	

AMENDMENT E

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

Dear Sir:

In response to the Notice of Allowance dated March 27, 2013, please amend the above-identified patent application as follows:

Amendments to the Specification are reflected on page 2 of this paper.
Amendments to the Claims are reflected in the listing of claims which begins on page 3 of this paper.
Remarks/Arguments are reflected on page 16 of this paper.

Amendments to the Specification:

Please **ADD** paragraph [0097.6] of the specification following paragraph [0097.5], as follows:

[0097.6] In one implementation, the measured sound (e.g. noise) levels at the vicinity of a user can be measured by a pickup device (e.g., microphone) at the vicinity of the user. The pickup device can be incorporated in an embodiment of the invention. For example, if the user is in an area with a lot of noise (e.g., ambient noise), such as at a confined space with various persons or where construction noise is present, signals received by the embodiment could be processed to attempt to suppress the unwanted noise. One approach to suppress the unwanted noise is to introduce audio outputs that are opposite in phase to the unwanted noise so as to cancel the noise. Noise suppression can be achieved through conventional digital signal processing, amplification and/or filtering techniques.

Amendments to the Claims:

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

Listing of Claims:

1. (Original) A hearing enhancement system for a user, comprising:

an audio system configured to receive input signals for broadcasting, and configured to up-convert the received input signals into up-converted signals to be wirelessly transmitted;

a wireless receiver configured to wirelessly receive the up-converted signals;

a down-converter configured to down-convert the received up-converted signals into down-converted signals;

a modifier configured to modify the down-converted signals into modified signals based on at least one hearing characteristic of the user to enhance the hearing of the user; and

a speaker configured to generate audio output signals from the modified signals for the user.

2. (Original) A hearing enhancement system as recited in claim 1, wherein the up-converted signals are in the WiFi frequency band.

3. (Original) A hearing enhancement system as recited in claim 1, wherein the audio system is selected from the list consisting a television, a stereo system, a CD player and a radio.

4. (Previously presented) A hearing enhancement system as recited in claim 1, wherein the audio system is a phone.

5. (Original) A hearing enhancement system as recited in claim 1, wherein the audio system receives the input signals from a microphone.

6. (Original) A hearing enhancement system as recited in claim 1, wherein the down-converted signals are modified such that a portion of the audio output signals has an increased power to enhance the hearing of the user.

7. (Original) A hearing enhancement system as recited in claim 6,

wherein the portion with increased power is selected based on frequency, and

wherein a higher frequency portion has increased power.

8. (Original) A hearing enhancement system as recited in claim 1,

wherein the at least one hearing characteristic of the user is determined via calibrating the user's hearing,

wherein the power of the audio output signals can be changed as a function of frequency, and

wherein the user can change the power of the audio output signals.

9. (Original) A hearing enhancement system as recited in claim 1, wherein the speaker is configured to generate ultrasonic signals, with at least a portion of the ultrasonic signals transformed into the audio output signals in air.

10. (Previously presented) A hearing enhancement apparatus for a user, the apparatus being wirelessly coupled to an audio system, which is configured to up-convert input signals into up-converted signals to be wirelessly transmitted, the apparatus comprising:

a wireless receiver configured to wirelessly receive the up-converted signals;

a down-converter configured to down-convert the received up-converted signals into down-converted signals;

a modifier configured to modify the down-converted signals into modified signals based on at least one hearing characteristic of the user to enhance the hearing of the user; and

a speaker configured to generate audio output signals from the modified signals for the user.

11. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the down-converted signals are modified such that a portion of the audio output signals has an increased power to enhance the hearing of the user.

12. (Original) A hearing enhancement apparatus as recited in claim 11,

wherein the portion with the increased power is selected based on frequency,

wherein a higher frequency portion has increased power,

wherein the at least one hearing characteristic of the user is determined via calibrating the user's hearing,

wherein the power of the audio output signals can be changed as a function of frequency, and

wherein the user can change the power of the audio output signals.

13. (Original) A hearing enhancement apparatus as recited in claim 12, wherein the down-converted signals are further modified based on the noise level of the environment of the apparatus.

14. (Previously presented) A hearing enhancement apparatus as recited in claim 13, wherein the apparatus is also configured to operate as at least a part of a phone.

15. (Original) A hearing enhancement apparatus as recited in claim 11,

wherein the portion with increased power is selected based on frequency, and

wherein a higher frequency portion has increased power.

16. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the up-converted signals are in the WiFi frequency band.

17. (Original) A hearing enhancement apparatus as recited in claim 10,

wherein the at least one hearing characteristic of the user is determined via calibrating the user's hearing,

wherein the power of the audio output signals can be changed as a function of frequency, and

wherein the user can change the power of the audio output signals.

18. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the speaker is configured to generate ultrasonic signals, with at least a portion of the ultrasonic signals transformed into the audio output signals in air.

19. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the down-converted signals are further modified based on the noise level of the environment of the apparatus.

20. (Previously presented) A hearing enhancement apparatus as recited in claim 10, wherein the apparatus is also configured to operate as at least a part of a phone.

21. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the at least one hearing characteristic of the user is wirelessly received and stored in the hearing enhancement apparatus.

22. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the at least one hearing characteristic of the user is retrieved from a

portable media storage device while being physically in contact with the apparatus.

23. (Original) A hearing enhancement system as recited in claim 1, wherein the speaker is a directional speaker.

24. (Original) A hearing enhancement system as recited in claim 1, wherein the speaker is an ear speaker.

25. (Original) A hearing enhancement system as recited in claim 1, wherein the speaker is in a headset.

26. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the speaker is a directional speaker.

27. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the speaker is an ear speaker.

28. (Original) A hearing enhancement apparatus as recited in claim 10, wherein the speaker is in a headset.

29. (Previously presented) A hearing enhancement apparatus as recited in claim 10,

wherein the audio system is configured to operate as a phone,

wherein the hearing enhancement apparatus is configured to operate in conjunction with or at least as a part of a mobile phone,

wherein the speaker is an ear speaker, and

wherein to enhance the hearing of the user, the modifier is configured to modify the down-converted signals into modified signals at one or more

frequencies within the audio frequencies, with the one or more frequencies being determined by the at least one hearing characteristic of the user.

30. (Previously presented) A hearing enhancement apparatus as recited in claim 29,

wherein the at least one hearing characteristic of the user is determined via calibrating the user's hearing at least across the one or more frequencies to generate at least a portion of the hearing profile of the user, and

wherein the hearing profile is stored in the hearing enhancement apparatus.

31. (Previously presented) A hearing enhancement apparatus as recited in claim 30, wherein the hearing enhancement apparatus allows the user to calibrate the user's hearing via a computing device.

32. (Previously presented) A hearing enhancement apparatus as recited in claim 30, wherein the hearing enhancement apparatus is configured to periodically remind the user to calibrate the user's hearing.

33. (Previously presented) A hearing enhancement apparatus as recited in claim 30, wherein at least a portion of the at least one hearing characteristic of the user is wirelessly received by and stored in the hearing enhancement apparatus.

34. (Previously presented) A hearing enhancement apparatus as recited in claim 33, wherein the hearing enhancement apparatus is a headset.

35. (Previously presented) A hearing enhancement apparatus as recited in claim 33, wherein the hearing enhancement apparatus is a computing device that is wearable.

36. (Previously presented) A hearing enhancement apparatus as recited in claim 33, wherein the hearing enhancement apparatus is a mobile phone.

37. (Previously presented) A hearing enhancement apparatus as recited in claim 36, wherein the hearing enhancement apparatus is configured to periodically remind the user to calibrate the user's hearing.

38. (Previously presented) A hearing enhancement apparatus as recited in claim 36, wherein the hearing enhancement apparatus includes a user control configured to allow the user to control the power of the audio output signals on a plurality of frequency bands across the audio frequencies.

39. (Previously presented) A hearing enhancement apparatus as recited in claim 29, wherein at least a portion of the at least one hearing characteristic is wirelessly received by and stored in the hearing enhancement apparatus.

40. (Previously presented) A hearing enhancement apparatus as recited in claim 39, wherein the hearing enhancement apparatus is a headset.

41. (Previously presented) A hearing enhancement apparatus as recited in claim 39, wherein the hearing enhancement apparatus is a computing device that is wearable.

42. (Previously presented) A hearing enhancement apparatus as recited in claim 39, wherein the hearing enhancement apparatus is a mobile phone.

43. (Previously presented) A hearing enhancement apparatus as recited in claim 29, wherein the hearing enhancement apparatus is configured to alter a power level of the audio output signals based on a noise level of the environment of the apparatus.

44. (Previously presented) A hearing enhancement apparatus as recited in claim 43,

wherein the hearing enhancement apparatus is configured to increase the power of the audio output signals as the noise level increases, and

wherein the hearing enhancement apparatus is configured not to further increase the power of the audio output signals if the noise level is beyond a certain predetermined threshold.

45. (Previously presented) A hearing enhancement apparatus as recited in claim 29, wherein the apparatus includes a volume control that is configured to respond to a voice command of the user.

46. (Previously presented) A hearing enhancement apparatus as recited in claim 10, wherein the hearing enhancement apparatus is a headset.

47. (Previously presented) A hearing enhancement apparatus as recited in claim 46, wherein the speaker is an ear speaker.

48. (Previously presented) A hearing enhancement apparatus as recited in claim 47, wherein the audio output signals are changed in view of a preference of the user stored in the apparatus.

49. (Previously presented) A hearing enhancement apparatus as recited in claim 48, wherein the audio output signals are changed based on audio sound in the environment of the apparatus.

50. (Previously presented) A hearing enhancement apparatus as recited in claim 49 further comprising a microphone at least for receiving the audio sound in the environment of the apparatus.

51. (Previously presented) A hearing enhancement apparatus as recited in claim 50, wherein the microphone is a directional microphone.

52. (Previously presented) A hearing enhancement apparatus as recited in claim 46, wherein the audio output signals are changed in view of a preference of the user stored in the apparatus.

53. (Previously presented) A hearing enhancement apparatus as recited in claim 46, wherein the audio output signals are changed based on audio sound in the environment of the apparatus.

54. (Previously presented) A hearing enhancement apparatus as recited in claim 53 further comprising a microphone at least for receiving the audio sound in the environment of the apparatus.

55. (Previously presented) A hearing enhancement apparatus as recited in claim 10, wherein the hearing enhancement apparatus is a mobile phone.

56. (Previously presented) A hearing enhancement apparatus as recited in claim 55, wherein the audio output signals are modified in view of a preference of the user stored in the apparatus.

57. (Previously presented) A hearing enhancement apparatus as recited in claim 56, wherein the audio output signals are modified based on audio sound in the environment of the apparatus.

58. (Previously presented) A hearing enhancement apparatus as recited in claim 57 further comprising a microphone at least for receiving the audio sound in the environment of the apparatus.

59. (Previously presented) A hearing enhancement apparatus as recited in claim 58, wherein the microphone is a directional microphone.

60. (Cancelled)

61. (Previously presented) A hearing enhancement apparatus as recited in claim 55, wherein the audio output signals are modified based on audio sound in the environment of the apparatus.

62. (Previously presented) A hearing enhancement apparatus as recited in claim 61 further comprising a microphone at least for receiving the audio sound in the environment of the apparatus.

63. (New) A hearing enhancement apparatus as recited in claim 10, wherein at least a portion of the hearing enhancement apparatus is in a head-mounted electronic device.

64. (New) A hearing enhancement apparatus as recited in claim 63, wherein the apparatus comprises a volume control that is configured to respond to a voice command.

65. (New) A hearing enhancement apparatus as recited in claim 63, wherein the apparatus is configured to recognize at least a voice command from the user and operate according to the voice command.

66. (New) A hearing enhancement apparatus as recited in claim 63, wherein the apparatus is configured to wirelessly couple to a cell phone.

67. (New) A hearing enhancement apparatus as recited in claim 63, wherein based on at least a preference of the user, the power of a first range of frequencies of the audio output signals is increased, and the power of a second range of frequencies of the audio output signals is not increased.

68. (New) A hearing enhancement apparatus as recited in claim 63, wherein the at least one hearing characteristic of the user is identified via measuring the user's hearing at least across a plurality of frequencies.

69. (New) A hearing enhancement apparatus as recited in claim 68, wherein the hearing enhancement apparatus assists in measuring the user's hearing.

70. (New) A hearing enhancement apparatus as recited in claim 63, wherein information regarding the at least one hearing characteristic of the user is wirelessly received and stored in the hearing enhancement apparatus.

71. (New) A hearing enhancement apparatus as recited in claim 63, wherein information regarding the at least one hearing characteristic of the user is retrieved from a portable media storage device while the portable media storage device is physically and electrically connected to the apparatus.

72. (New) A hearing enhancement apparatus as recited in claim 63, wherein the hearing enhancement apparatus is configured to alter a power level of the audio output signals so as to suppress at least a sound level associated with the environment of the apparatus so as to provide noise cancellation.

73. (New) A hearing enhancement apparatus as recited in claim 72 further comprising a microphone configured to receive audio sound at the environment of the apparatus for determining the sound level associated with the environment of the apparatus.

74. (New) A hearing enhancement apparatus as recited in claim 65, wherein the at least one hearing characteristic of the user is identified via measuring the user's hearing at least across a plurality of frequencies.

75. (New) A hearing enhancement apparatus as recited in claim 74, wherein the hearing enhancement apparatus is configured to alter a power level of the audio output signals so as to suppress at least a sound level associated with the environment of the apparatus so as to provide noise cancellation.

76. (New) A hearing enhancement apparatus as recited in claim 75 further comprising a microphone configured to receive audio sound at the environment of the apparatus for determining the sound level associated with the environment of the apparatus.

77. (New) A hearing enhancement apparatus as recited in claim 76, wherein the apparatus is configured to wirelessly couple to a cell phone.

78. (New) A hearing enhancement apparatus as recited in claim 77, wherein based on at least a preference of the user, the power of a first range of frequencies of the audio output signals is increased, and the power of a second range of frequencies of the audio output signals is not increased.

79. (New) A hearing enhancement apparatus as recited in claim 65, wherein the hearing enhancement apparatus is configured to alter a power level of the audio output signals so as to suppress at least a sound level associated with the environment of the apparatus so as to provide noise cancellation.

80. (New) A hearing enhancement apparatus as recited in claim 79 further comprising a microphone configured to receive audio sound at the environment of the apparatus for determining the sound level associated with the environment of the apparatus.

81. (New) A hearing enhancement apparatus as recited in claim 80, wherein the apparatus is configured to wirelessly couple to a cell phone.

82. (New) A hearing enhancement apparatus as recited in claim 81, wherein based on at least a preference of the user, the power of a first range of frequencies of the audio output signals is increased, and the power of a second range of frequencies of the audio output signals is not increased.

83. (New) A hearing enhancement apparatus as recited in claim 82, wherein the at least one hearing characteristic of the user is identified via measuring the user's hearing at least across a plurality of frequencies.

REMARKS

Applicants previously presented claims 1 through 62 for examination. In the above-identified Notice of Allowance, the Examiner has allowed all the claims, which Applicants acknowledge with gratitude. By this amendment, Applicants have deleted claim 60, and have added dependent claims 63-83. Accordingly, claims 1-59 and 61-83 are pending.

Applicants have added paragraph 97.6 to the specification. The addition is supported, for example, by paragraph 49 of U.S. Patent Application No. 10/826,528, entitled, "METHOD AND APPARATUS FOR WIRELESS AUDIO DELIVERY"; and by paragraph 67 of U.S. Patent Application No. 10/826,537, entitled, "METHOD AND APPARATUS FOR LOCALIZED DELIVERY OF AUDIO SOUND FOR ENHANCED PRIVACY"; both of which were previously incorporated by reference. Thus no new matter has been introduced.

Reconsideration of the application and an early Notice of Allowance are earnestly solicited. If there are any issues remaining which the Examiner believes could be resolved through either a Supplemental Response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned representative at the telephone number listed below.

Respectfully submitted,

5150 El Camino Real
Building A, Suite 22
Los Altos, CA 94022
(650) 903-9200 ext 102

By: /Peter P. Tong/
Peter P. Tong
Registration No.: 35,757

Apple Inc. Exhibit 1002 Page 335

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: CHEUNG et al.	Attorney Docket No.: IPVBP002C1
Application No.: 12/157,092	Examiner: DABNEY, PHYLESHA LARVINIA
Filed: June 6, 2008	Group: 2655
Title: HEARING ENHANCEMENT SYSTEMS	

AMENDMENT E TRANSMITTAL

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

Sir:

Transmitted herewith is an Amendment in the above-identified application.

The fee has been calculated as shown below.

	Claims After Amendment		Highest Previously Paid For	Present Extra	Small Entity Rate Fee	Large Entity Rate Fee
Total Claims	82	MINUS	62	20	x 40 = 800	x 80 =
Independent Claims	2	MINUS	2	00	x 210 = 0	x 420 =
Multiple Dependent Claim Present and Fee Not Previously Paid					$	$
				Total	$800.00	$

☐ Applicant(s) hereby petition for a _____- month extension(s) of time to respond to the aforementioned Office Action.

☒ Applicant(s) believe that no (additional) Extension of Time is required; however, if it is determined that such an extension is required, Applicant(s) hereby petition that such an extension be granted and authorize the Commissioner to charge the required fees for an Extension of Time under 37 CFR 1.136 to Deposit Account No. 50-3874 (Order No. IPVBP002C1).

☒ Any fees due are being paid electronically herewith.

☒ Please charge any additional fees required to facilitate filing the enclosed response, to Deposit Account No. 50-3874 (Order No. IPVBP002C1).

Respectfully submitted,

/Peter P. Tong/

Peter P. Tong
Reg. No. 35,757

Electronic Patent Application Fee Transmittal

Application Number:	12157092
Filing Date:	06-Jun-2008
Title of Invention:	DIRECTIONAL HEARING ENHANCEMENT SYSTEMS
First Named Inventor/Applicant Name:	Kwok Wai Cheung
Filer:	Peter P. Tong/Angela Nijim
Attorney Docket Number:	IPVBP002C1

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Claims in excess of 20	2202	20	40	800
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
RCE - 2nd and Subsequent Request	2820	1	850	850
		Total in USD ($)		**1650**

Electronic Acknowledgement Receipt	
EFS ID:	16040959
Application Number:	12157092
International Application Number:	
Confirmation Number:	6143
Title of Invention:	DIRECTIONAL HEARING ENHANCEMENT SYSTEMS
First Named Inventor/Applicant Name:	Kwok Wai Cheung
Customer Number:	34071
Filer:	Peter P. Tong/Angela Nijim
Filer Authorized By:	Peter P. Tong
Attorney Docket Number:	IPVBP002C1
Receipt Date:	14-JUN-2013
Filing Date:	06-JUN-2008
Time Stamp:	11:48:10
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$1650
RAM confirmation Number	9898
Deposit Account	503874
Authorized User	TONG, PETER P
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees) Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Continued Examination (RCE)	IPVBP002C1-RCE-6-13.pdf	797752 157e56f5aa1298d54cec90a77c7191617d75e83b	no	3
Warnings:					
Information:					
2	Amendment Submitted/Entered with Filing of CPA/RCE	IPVBP002C1-AmdE-asfiled-6-13.pdf	59237 76e235f3b991e9065e6f5ffe6e636486a441a7c8	no	16
Warnings:					
Information:					
3	Miscellaneous Incoming Letter	IPVBP002C1-AmdETrans-6-13.pdf	17187 f72577c822085d759dd18ccc474f7dfd1d5990b6	no	1
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	32541 0d04863059cecbb9e2778ecb03e3774f954f19c9	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	906717		

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

<u>New Applications Under 35 U.S.C. 111</u>
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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

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

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

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 12/157,092	Filing Date 06/06/2008	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	06/14/2013	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 82	Minus	** 62	= 20	X $40 =	800
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $210 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	**800**

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

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
/KIMBERLY PANNELL/

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.

UNITED STATES PATENT AND TRADEMARK OFFICE

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

NOTICE OF ALLOWANCE AND FEE(S) DUE

34071 7590 07/10/2013

IPVENTURE, INC.
5150 EL CAMINO REAL
SUITE A-22
LOS ALTOS, CA 94022

EXAMINER
DABNEY, PHYLESHA LARVINIA

ART UNIT	PAPER NUMBER
2655	

DATE MAILED: 07/10/2013

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/157,092	06/06/2008	Kwok Wai Cheung	IPVBP002C1	6143

TITLE OF INVENTION: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$890	$300	$0	$1190	10/10/2013

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

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

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

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

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

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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

34071 7590 07/10/2013
IPVENTURE, INC.
5150 EL CAMINO REAL
SUITE A-22
LOS ALTOS, CA 94022

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/157,092	06/06/2008	Kwok Wai Cheung	IPVBP002C1	6143

TITLE OF INVENTION: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$890	$300	$0	$1190	10/10/2013

EXAMINER	ART UNIT	CLASS-SUBCLASS
DABNEY, PHYLESHA LARVINIA	2655	375-260000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

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

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

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

4a. The following fee(s) are submitted:

❑ Issue Fee

❑ Publication Fee (No small entity discount permitted)

❑ Advance Order - # of Copies _____

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

❑ A check is enclosed.

❑ Payment by credit card. Form PTO-2038 is attached.

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

Apple Inc. Exhibit 1002 Page 343

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

❑ Applicant certifying micro entity status. See 37 CFR 1.29

NOTE: Absent a valid certification of Micro Entity Status (see form PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

❑ Applicant asserting small entity status. See 37 CFR 1.27

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

❑ Applicant changing to regular undiscounted fee status.

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

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/157,092	06/06/2008	Kwok Wai Cheung	IPVBP002C1	6143

34071 7590 07/10/2013

IPVENTURE, INC.
5150 EL CAMINO REAL
SUITE A-22
LOS ALTOS, CA 94022

EXAMINER	
DABNEY, PHYLESHA LARVINIA	
ART UNIT	**PAPER NUMBER**
2655	

DATE MAILED: 07/10/2013

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

The Patent Term Adjustment to date is 727 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 727 day(s).

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

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

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Privacy Act Statement

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

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

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

Notice of Allowability	Application No.	Applicant(s)	
	12/157,092	CHEUNG ET AL.	
	Examiner	Art Unit	
	PHYLESHA DABNEY	2655	

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

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *6/14/2013*.

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

3. ☒ The allowed claim(s) is/are *1-62*. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov .

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

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

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

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

Attachment(s)

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

/PHYLESHA DABNEY/
Examiner, Art Unit 2655

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 6/14/2013 has been entered. Claims **1-62** are pending.

Reasons for Allowance

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

The limitations claims in the patent application (7388962) are broader than the scope of the claims in the present application.

Furthermore, the prior art of records fails to a hearing enhancement system for a user, comprising: an audio system configured to receive input signals for broadcasting, and configured to up-convert the received input signals into up-converted signals to be wirelessly transmitted; a wireless receiver configured to wirelessly receive the up-converted signals; a down-converter configured to down-convert the received up-converted signals into down-converted signals; a modifier configured to modify the down-converted signals into modified signals based on at least one hearing characteristic of the user to enhance the hearing of the user; and a speaker configured to generate audio output signals from the modified signals for the user as substantially described and connected with the functional language of the recited claims.

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

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHYLESHA DABNEY whose telephone number is (571)272-7494. The examiner can normally be reached on Monday through Wednesday and Friday 10:30-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Davetta W. Goins can be reached on 571-272-2957. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any response to this action should be mailed to:
Commissioner of Patents and Trademarks
P O Box 1450
Alexandria, VA 22313-1450

Or faxed to:
(703) 273-8300, for formal communications intended for entry and for informal or draft communications, please label "Proposed" or "Draft" when submitting an informal amendment.

Hand-delivered responses should be brought to:
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

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.

June 29, 2013

/PHYLESHA DABNEY/
Examiner, Art Unit 2655
/MOHAMMAD ISLAM/
Primary Examiner, Art Unit 2655

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12157092	CHEUNG ET AL.
	Examiner	**Art Unit**
	PHYLESHA DABNEY	2655

CPC		
Symbol	**Type**	**Version**

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

/PHYLESHA DABNEY/ Examiner.Art Unit 2655	06/29/2013	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	62	
/MOHAMMAD ISLAM/ Primary Examiner.Art Unit 2655	07/01/2013	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12157092	CHEUNG ET AL.
	Examiner	**Art Unit**
	PHYLESHA DABNEY	2655

US ORIGINAL CLASSIFICATION		INTERNATIONAL CLASSIFICATION										
CLASS	SUBCLASS	CLAIMED					NON-CLAIMED					
381	313	H	0	4	R	25 / 00 (2006.01.01)						

CROSS REFERENCE(S)					
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
381	77	381	330		
455	569.1				

/PHYLESHA DABNEY/ Examiner.Art Unit 2655	06/29/2013	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	62	
/MOHAMMAD ISLAM/ Primary Examiner.Art Unit 2655	07/01/2013	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12157092	CHEUNG ET AL.
	Examiner	**Art Unit**
	PHYLESHA DABNEY	2655

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

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1		17		33										
	2		18		34										
	3		19		35										
	4		20		36										
	5		21		37										
	6		22		38										
	7		23		39										
	8		24		40										
	9		25		41										
	10		26		42										
	11		27		43										
	12		28		44										
	13		29		45										
	14		30												
	15		31												
	16		32												

/PHYLESHA DABNEY/ Examiner.Art Unit 2655	06/29/2013	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	62	
/MOHAMMAD ISLAM/ Primary Examiner.Art Unit 2655	07/01/2013	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12157092	CHEUNG ET AL.
	Examiner	Art Unit
	PHYLESHA DABNEY	2655

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
455	575.6, 550.1	5/20/11	pld
381	312, 316, 320, 77, 79	5/20/11	pld

SEARCH NOTES		
Search Notes	Date	Examiner
Plus and Claims search	5/20/11	pld
Text search	5/20/11	pld
Review continuation: 10826527 and related cases: 108265529, 11893835, 10826528	7/30/11	pld
Review IDS	7/31/11	pld
*check issue classification for 381/77 or 455/575.6	7/31/11	pld
Update search	12/17/2011	pld
Review Amendment after allowance	3/21/2012	pld
Review amendment after allowance. IDS considered.	8/9/2012	pld
IDs submission	11/29/2012	pld
IDS submission	3/5/2013	pld
Applicant amended specification to include subject matter incorporated by reference.	6/29/2013	pld

INTERFERENCE SEARCH

/PHYLESHA DABNEY/ Examiner.Art Unit 2655	

US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
	same as above	12/29/11	pld

/PHYLESHA DABNEY/ Examiner.Art Unit 2655	

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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

34071 7590 07/10/2013
IPVENTURE, INC.
5150 EL CAMINO REAL
SUITE A-22
LOS ALTOS, CA 94022

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/157,092	06/06/2008	Kwok Wai Cheung	IPVBP002C1	6143

TITLE OF INVENTION: DIRECTIONAL HEARING ENHANCEMENT SYSTEMS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$890	$300	$0	$1190	10/10/2013

EXAMINER	ART UNIT	CLASS-SUBCLASS
DABNEY, PHYLESHA LARVINIA	2655	375-260000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

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

(A) NAME OF ASSIGNEE: IpVenture, Inc.
(B) RESIDENCE: (CITY and STATE OR COUNTRY): Los Altos, CA

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

4a. The following fee(s) are submitted:
☒ Issue Fee
☒ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
☐ A check is enclosed.
☒ Payment by credit card. ~~Form PTO-2038 is attached.~~
☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number 50-3874 (enclose an extra copy of this form).

PTOL-85 (Rev. 02/11)

Apple Inc. Exhibit 1002 Page 356

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

❑ Applicant certifying micro entity status. See 37 CFR 1.29	NOTE: Absent a valid certification of Micro Entity Status (see form PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
❑ Applicant asserting small entity status. See 37 CFR 1.27	NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
❑ Applicant changing to regular undiscounted fee status.	NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature /Peter P. Tong/ Date September 26, 2013

Typed or printed name Peter P. Tong Registration No. 35,757

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Electronic Patent Application Fee Transmittal

Application Number:	12157092
Filing Date:	06-Jun-2008
Title of Invention:	DIRECTIONAL HEARING ENHANCEMENT SYSTEMS
First Named Inventor/Applicant Name:	Kwok Wai Cheung
Filer:	Peter P. Tong/Angela Nijim
Attorney Docket Number:	IPVBP002C1

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl Issue Fee	2501	1	890	890
Publ. Fee- Early, Voluntary, or Normal	1504	1	300	300

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**1190**

Electronic Acknowledgement Receipt	
EFS ID:	16988620
Application Number:	12157092
International Application Number:	
Confirmation Number:	6143
Title of Invention:	DIRECTIONAL HEARING ENHANCEMENT SYSTEMS
First Named Inventor/Applicant Name:	Kwok Wai Cheung
Customer Number:	34071
Filer:	Peter P. Tong/Angela Nijim
Filer Authorized By:	Peter P. Tong
Attorney Docket Number:	IPVBP002C1
Receipt Date:	30-SEP-2013
Filing Date:	06-JUN-2008
Time Stamp:	11:24:26
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$1190
RAM confirmation Number	935
Deposit Account	503874
Authorized User	TONG, PETER P
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees) Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	IPVBP002C1-IFTrans-9-13.pdf	173195 fd6d647a3ea25031eaaa6f0caf47ed373e2b4b69	no	2
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	32383 2f237e0a474957c963859e141131a0e26bf04225	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	205578		

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.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /P.D./

Form 1449 (Modified)	Atty. Docket No.	IPVBP002C1
	Application No.:	12/157,092
Information Disclosure Statement By Applicant	Applicant	CHEUNG et al.
	Filing Date	June 6, 2008
	Group	2627
(Use Several Sheets if Necessary)		Page 3 of 7

	58.	2002/0048385 A1	Apr.-02	Rosenberg			
	59.	2002/0054689 A1	May-02	Zhang et al.			
	60.	2002/0090099 A1	Jul.-02	Hwang			
	61.	2002/0090103 A1	Jul.-02	Calisto, Jr.			
	62.	2002/0012441 A1	Jan.-02	Matsunaga et al.			
	63.	2002/0141599 A1	Oct.-02	Trajkovic et al.			
	64.	2002/0149705 A1	Oct.-02	Allen et al.			
	65.	2002/0183648 A1	Dec.-02	Hou			
	66.	2002/0191807 A1	Dec.-02	Asada et al.			
	67.	2003/0009248 A1	Jan-03	Wiser et al.			
	68.	2003/0035552 A1	Feb.-03	Kolano et al.			
	69.	2003/0091200 A1	May-03	Pompei			
	70.	2003/0092377 A1	May-03	Hill			
	71.	2003/0118198 A1	Jun.-03	Croft, III et al.			
Change(s) applied to document, /A.J.P./ 2/15/2012	72.	2003/0182104 A1	~~Sep.-05~~	Muesch		09/2003	
	73.	2004/0052387 A1	Mar.-04	Norris et al.			
	74.	2004/0202339 A1	Oct.-04	O'Brien, Jr. et al.			
	75.	2004/0204168 A1	Oct.-04	Laurila			
	76.	2007/0287516 A1	Dec.-07	Cheung			

Foreign Documents

Init.		Document No.	Date	Country	Class	Subclass	Translation Yes	Translation No

Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)

	A	PCT International Search Report, RE: PCT/US04/11972, January 31, 2005.
	B	PCT Written Opinion of the International Searching Authority, RE: PCT/US04/11972, January 31, 2005.
	C	American Technology Corporation, HyperSonic Sound, January 22, 2002, www.atacsd.com.

Examiner	Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
12/157,092	06/06/2008	2655	2882	IPVBP002C1	22	2

CONFIRMATION NO. 6143

CORRECTED FILING RECEIPT

34071
IPVENTURE, INC.
5150 EL CAMINO REAL
SUITE A-22
LOS ALTOS, CA 94022



Date Mailed: 10/10/2013

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

Inventor(s)

Kwok Wai Cheung, Hong Kong, CHINA;
Peter P. Tong, Mountain View, CA;
C. Douglass Thomas, Campbell, CA;

Applicant(s)

Kwok Wai Cheung, Hong Kong, CHINA;
Peter P. Tong, Mountain View, CA;
C. Douglass Thomas, Campbell, CA;

Power of Attorney: The patent practitioners associated with Customer Number 34071

Domestic Priority data as claimed by applicant

This application is a CON of 10/826,527 04/15/2004 PAT 7388962
which claims benefit of 60/462,570 04/15/2003
and claims benefit of 60/469,221 05/12/2003
and claims benefit of 60/493,441 08/08/2003

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

If Required, Foreign Filing License Granted: 06/20/2008
The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 12/157,092**
Projected Publication Date: Not Applicable

Non-Publication Request: No

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

HEARING ENHANCEMENT SYSTEMS

Preliminary Class

375

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

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

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

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

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

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

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

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

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

NOT GRANTED

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

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12157092	CHEUNG ET AL.
	Examiner	**Art Unit**
	PHYLESHA DABNEY	2655

CPC		
Symbol	**Type**	**Version**

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

/PHYLESHA DABNEY/ Examiner.Art Unit 2655	10/11/2013	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	82	
		O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12157092	CHEUNG ET AL.
	Examiner	**Art Unit**
	PHYLESHA DABNEY	2655

US ORIGINAL CLASSIFICATION		INTERNATIONAL CLASSIFICATION										
CLASS	SUBCLASS	CLAIMED					NON-CLAIMED					
381	313	H	0	4	R	25 / 00 (2006.0)						

CROSS REFERENCE(S)					
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
381	77	381	330		
455	569.1				

/PHYLESHA DABNEY/ Examiner.Art Unit 2655	10/11/2013	**Total Claims Allowed:**
(Assistant Examiner)	(Date)	82
(Primary Examiner)	(Date)	O.G. Print Claim(s): 1 / O.G. Print Figure: 1

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12157092	CHEUNG ET AL.
	Examiner	**Art Unit**
	PHYLESHA DABNEY	2655

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

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	20	17	33	33	49	49	64	65	72	81				
2	2	21	18	34	34	50	50	75	66	73	82				
3	3	22	19	35	35	51	51	76	67	74	83				
4	4	23	20	36	36	52	52	77	68						
5	5	24	21	37	37	53	53	78	69						
6	6	25	22	38	38	54	54	79	70						
7	7	10	23	39	39	55	55	80	71						
8	8	11	24	40	40	56	56	81	72						
9	9	12	25	41	41	57	57	82	73						
13	10	26	26	42	42	58	58	65	74						
14	11	27	27	43	43	59	59	66	75						
15	12	28	28	44	44		60	67	76						
16	13	29	29	45	45	60	61	68	77						
17	14	30	30	46	46	61	62	69	78						
18	15	31	31	47	47	62	63	70	79						
19	16	32	32	48	48	63	64	71	80						

/PHYLESHA DABNEY/ Examiner.Art Unit 2655	10/11/2013	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	82	
		O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office Part of Paper No. 20131011

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/157,092	11/12/2013	8582789	IPVBP002C1	6143

34071 7590 10/23/2013

IPVENTURE, INC.
5150 EL CAMINO REAL
SUITE A-22
LOS ALTOS, CA 94022

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

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

The Patent Term Adjustment is 955 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

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

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

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

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

Kwok Wai Cheung, Hong Kong, CHINA;
Peter P. Tong, Mountain View, CA;
C. Douglass Thomas, Campbell, CA;

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

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Cheung et al.	Attorney Docket No.: IPVBP002C1
Patent No.: 8,582,789 B2	Issued: November 12, 2013
Appln. No.: 12/157,092	
Title: Hearing Enhancement Systems	

REQUEST FOR CERTIFICATE OF CORRECTION OF APPLICANT'S MISTAKE (35 U.S.C §255, 37 C.F.R. §1.323)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450
Attn: Certificate of Correction

Dear Sir:

Attached is Form PTO-1050 (Certificate of Correction) at least one copy of which is suitable for printing.

A mistake of a clerical or typographical nature, or minor in character appears in the above-referenced patent; however, the mistake occurred in good faith. The correction introduces no new matter nor requires reexamination. The mistake occurred because of either USPTO printing errors or Applicants' errors in presenting claims.

The error(s) together with the exact page and line number where the error(s) appear in the application file are as follows:

On page 2, Item (56) References Cited U.S. Patent Documents:

"6,895,261 B1 5/2005 **Palamidies**"

should be --6,895,261 B1 5/2005 **Palamides**--.

[Applicants' error] This error appears in the Form 1449 submitted July 22, 2008.

In the Specification:

In column 13, please delete lines 32 to 52, the third and fourth full paragraphs. *[PTO Error] These appear correctly in Original Application, submitted on June 6, 2008, as filed on page 24.*

Please insert at column 14, line 39, after the second full paragraph, the following: --In one embodiment, signals driving a speaker in a system of the present invention can be modified based upon user information stored in the system. As such, the audio sound being produced by the speaker can be customized for (or personalized to) the user. For example, when the user information pertains to user preferences of the user, the audio output by the speaker is customized for the user preferences of the user.

In one implementation, the measured sound (e.g. noise) levels at the vicinity of a user can be measured by a pickup device (e.g., microphone) at the vicinity of the user. The pickup device can be incorporated in an embodiment of the invention. For example, if the user is in an area with a lot of noise (e.g., ambient noise), such as at a confined space with various persons or where construction noise is present, signals received by the embodiment could be processed to attempt to suppress the unwanted noise. One approach to suppress the unwanted noise is to introduce audio outputs that are opposite in phase to the unwanted noise so as to cancel the noise. Noise suppression can be achieved through conventional digital signal processing, amplification and/or filtering techniques.--.

[PTO Error] In the above two paragraphs, the first one appears correctly in Amendment D, submitted on March 5, 2013, as filed on page 2. The second one appears correctly in Amendment E, submitted on June 14, 2013, as filed on page 2.

CLAIMS:

Column 16, lines 66-67 (claim 23, lines 2-3) “configured to operate as a phone” should be --configured to operate as at least a part of a phone--.

[PTO Error] This error appears correctly in Amendment B, submitted March 19, 2012, as filed on page 5, lines 22-23 (formerly claim 20).

Column 19, line 7 (claim 63, line 1) “as recited in 62” should be --as recited in claim 62--.

[PTO Error] This error appears correctly in Amendment E, submitted June 14, 2013, as filed on page 12, line 18 (formerly claim 64).

Column 19, line 10 (claim 64, line 1) “as recited in 62” should be --as recited in claim 62--.

[PTO Error] This error appears correctly in Amendment E, submitted June 14, 2013, as filed on page 12, line 22 (formerly claim 65).

Column 20, line 11 (claim 75, line 1) “as recited in 62” should be --as recited in claim 62--.

[PTO Error] This error appears correctly in Amendment E, submitted June 14, 2013, as filed on page 12, line 26 (formerly claim 66).

Column 20, line 14 (claim 76, line 1) “as recited in 62” should be --as recited in claim 62--.

[PTO Error] This error appears correctly in Amendment E, submitted June 14, 2013, as filed on page 13, line 1 (formerly claim 67).

Column 20, line 19 (claim 77, line 1) “as recited in 62” should be --as recited in claim 62--.

[PTO Error] This error appears correctly in Amendment E, submitted June 14, 2013, as filed on page 13, line 6 (formerly claim 68).

Column 20, line 26 (claim 79, line 1) “as recited in 62” should be --as recited in claim 62--.

[PTO Error] This error appears correctly in Amendment E, submitted June 14, 2013, as filed on page 13, line 13 (formerly claim 70).

Column 20, line 31 (claim 80, line 1) “as recited in 62” should be --as recited in claim 62--.

[PTO Error] This error appears correctly in Amendment E, submitted June 14, 2013, as filed on page 13, line 17 (formerly claim 71).

Column 20, line 36 (claim 81, line 1) “as recited in 62” should be --as recited in claim 62--.

[PTO Error] This error appears correctly in Amendment E, submitted June 14, 2013, as filed on page 13, line 22 (formerly claim 72).

Any fees due are being paid electronically herewith. If it is determined that any additional fees are due, the Commissioner is hereby authorized to charge such fees to Deposit Account 50-3874 (Order No. IPVBP002C1).

Respectfully submitted,

/Peter P. Tong/

Peter P. Tong
Registration No. 35,757

IpVenture, Inc.
5150 El Camino Real
Building A, Suite 22
Los Altos, CA 94022

PTO/SB/44 (09-07)
Approved for use through 08/31/2010. OMB 0651-0033
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 8,582,789 B2

APPLICATION NO.: 12/157,092

ISSUE DATE : Novemeber 12, 2013

INVENTOR(S) : CHEUNG et al.

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

On page 2, Item (56) References Cited U.S. Patent Documents:

"6,895,261 B1 5/2005 Palamidies" should be --6,895,261 B1 5/2005 Palamides--.

In the Specification:

In column 13, please delete lines 32 to 52, the third and fourth full paragraphs.

Please insert at column 14, line 39, after the second full paragraph, the following:
--In one embodiment, signals driving a speaker in a system of the present invention can be modified based upon user information stored in the system. As such, the audio sound being produced by the speaker can be customized for (or personalized to) the user. For example, when the user information pertains to user preferences of the user, the audio output by the speaker is customized for the user preferences of the user.
In one implementation, the measured sound (e.g. noise) levels at the vicinity of a user can be measured by a pickup device (e.g., microphone) at the vicinity of the user. The pickup device can be incorporated in an embodiment of the invention. For example, if the user is in an area with a lot of noise (e.g., ambient noise), such as at a confined space with various persons or where construction noise is present, signals received by the embodiment could be processed to attempt to suppress the unwanted noise. One approach to suppress the unwanted noise is to introduce audio outputs that are opposite in phase to the unwanted noise so as to cancel the noise. Noise suppression can be achieved through conventional digital signal processing, amplification and/or filtering techniques.--.

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

IpVenture, Inc.
5150 El Camino Real, Bldg. A, Ste. 22
Los Altos, CA 94022

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

PTO/SB/44 (09-07)
Approved for use through 08/31/2010. OMB 0651-0033
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UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 8,582,789 B2

APPLICATION NO.: 12/157,092

ISSUE DATE : Novemeber 12, 2013

INVENTOR(S) : CHEUNG et al.

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

CLAIMS:

Column 16, lines 66-67 (claim 23, lines 2-3) “configured to operate as a phone” should be --configured to operate as at least a part of a phone--.

Column 19, line 7 (claim 63, line 1) “as recited in 62” should be --as recited in claim 62--.

Column 19, line 10 (claim 64, line 1) “as recited in 62” should be --as recited in claim 62--.

Column 20, line 11 (claim 75, line 1) “as recited in 62” should be --as recited in claim 62--.

Column 20, line 14 (claim 76, line 1) “as recited in 62” should be --as recited in claim 62--.

Column 20, line 19 (claim 77, line 1) “as recited in 62” should be --as recited in claim 62--.

Column 20, line 26 (claim 79, line 1) “as recited in 62” should be --as recited in claim 62--.

Column 20, line 31 (claim 80, line 1) “as recited in 62” should be --as recited in claim 62--.

Column 20, line 36 (claim 81, line 1) “as recited in 62” should be --as recited in claim 62--.

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5150 El Camino Real, Bldg. A, Ste. 22
Los Altos, CA 94022

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

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

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

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

Electronic Patent Application Fee Transmittal

Application Number:	12157092
Filing Date:	06-Jun-2008
Title of Invention:	HEARING ENHANCEMENT SYSTEMS
First Named Inventor/Applicant Name:	Kwok Wai Cheung
Filer:	Peter P. Tong
Attorney Docket Number:	IPVBP002C1

Filed as Large Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Certificate of Correction	1811	1	100	100
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
			Total in USD ($)	**100**

Electronic Acknowledgement Receipt	
EFS ID:	17997314
Application Number:	12157092
International Application Number:	
Confirmation Number:	6143
Title of Invention:	HEARING ENHANCEMENT SYSTEMS
First Named Inventor/Applicant Name:	Kwok Wai Cheung
Customer Number:	34071
Filer:	Peter P. Tong
Filer Authorized By:	
Attorney Docket Number:	IPVBP002C1
Receipt Date:	22-JAN-2014
Filing Date:	06-JUN-2008
Time Stamp:	19:54:49
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$100
RAM confirmation Number	6129
Deposit Account	503874
Authorized User	TONG, PETER P
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

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

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Certificate of Correction	Certificate_of_Correction_1-2014_PTO.pdf	175578 7c5b6243fdefc83996161bc683642eb213160505	no	7
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30078 d252ef585aa97e9aabbe6f637ff7805cdb9ab50e	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	205656		

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

<u>New Applications Under 35 U.S.C. 111</u>
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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

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

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 8,582,789 B2
APPLICATION NO. : 12/157092
DATED : November 12, 2013
INVENTOR(S) : Cheung et al.

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

On Title page 2, Item (56) References Cited U.S. Patent Documents:

"6,895,261 B1 5/2005 Palamidies" should be --6,895,261 B1 5/2005 Palamides--.

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In column 13, please delete lines 32 to 52, the third and fourth full paragraphs.

Please insert at column 14, line 39, after the second full paragraph, the following:
--In one embodiment, signals driving a speaker in a system of the present invention can be modified based upon user information stored in the system. As such, the audio sound being produced by the speaker can be customized for (or personalized to) the user. For example, when the user information pertains to user preferences of the user, the audio output by the speaker is customized for the user preferences of the user.

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In the Claims:

Column 16, lines 66-67 (claim 23, lines 2-3) "configured to operate as a phone" should be --configured to operate as at least a part of a phone--.

Signed and Sealed this
Eleventh Day of March, 2014

Michelle K. Lee

Michelle K. Lee
Deputy Director of the United States Patent and Trademark Office

Column 19, line 7 (claim 63, line 1) “as recited in 62” should be --as recited in claim 62--.

Column 19, line 10 (claim 64, line 1) “as recited in 62” should be --as recited in claim 62--.

Column 20, line 11 (claim 75, line 1) “as recited in 62” should be --as recited in claim 62--.

Column 20, line 14 (claim 76, line 1) “as recited in 62” should be --as recited in claim 62--.

Column 20, line 19 (claim 77, line 1) “as recited in 62” should be --as recited in claim 62--.

Column 20, line 26 (claim 79, line 1) “as recited in 62” should be --as recited in claim 62--.

Column 20, line 31 (claim 80, line 1) “as recited in 62” should be --as recited in claim 62--.

Column 20, line 36 (claim 81, line 1) “as recited in 62” should be --as recited in claim 62--.