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Murayama et al.(10) **Pub. No.: US 2009/0203286 A1**(43) **Pub. Date: Aug. 13, 2009**(54) **AUDIO SIGNAL RECEPTION TYPE
VOCALIZING TOY AND VOCALIZING TOY
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(57) **ABSTRACT**

An audio signal reception type vocalizing toy is worn and used by a user as a visitor in a customer attraction facility. A light receiving unit having a light receiving element for receiving visible light through a condensing lens is attached to the front of a wear type toy body. An amplifier and filter circuit are provided in the wear type toy body, the amplifier amplifying a signal output from the light receiving unit, and the filter circuit integrating a digital signal output from the amplifier into an analog audio signal and outputting it to a speaker(s). The speaker(s) is (are) attached into the wear type toy body. When the user wears the vocalizing toy and directs the light receiving unit in the front of the wear type toy body to a visible light source of a visible light transmitter for superimposing and projecting an audio signal on visible light in the customer attraction facilities, the light receiving unit receives the visible light and picks up the audio signal contained in the light reception signal, and sound containing music, voice, etc., is generated by the speaker.

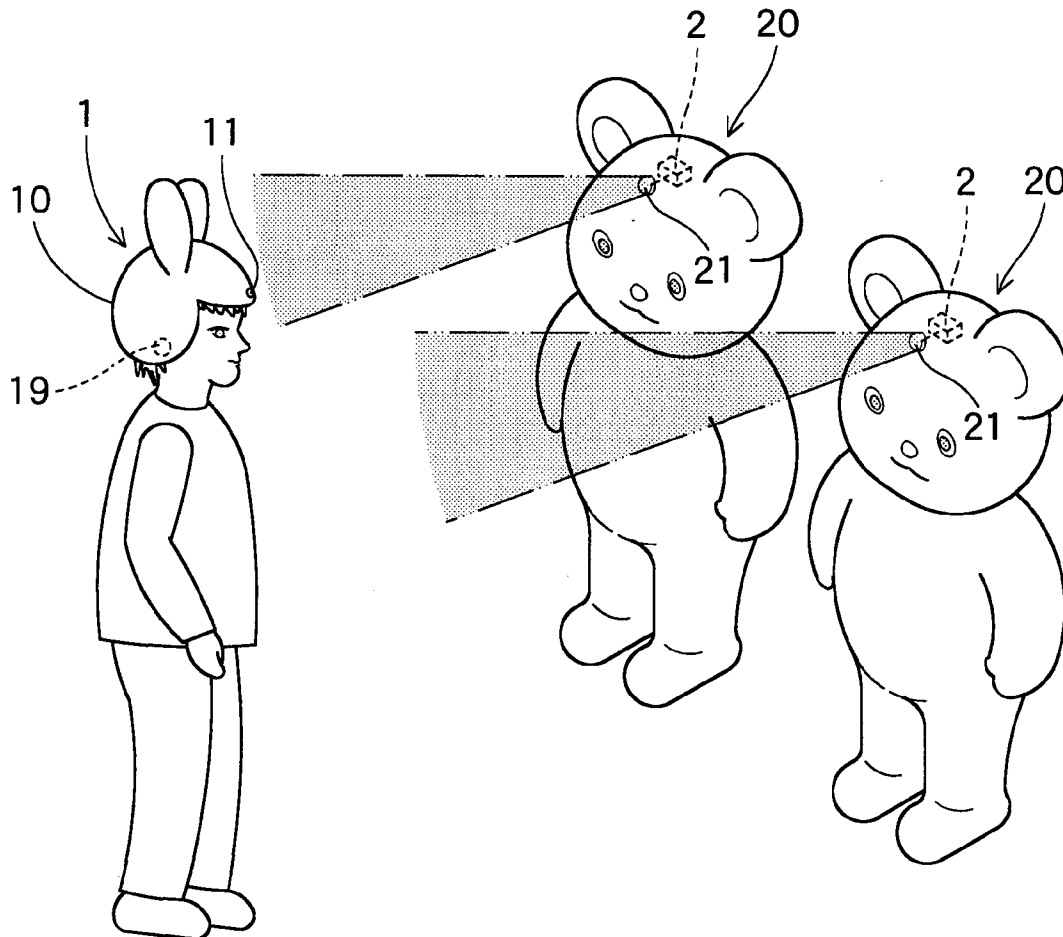


Fig. 1

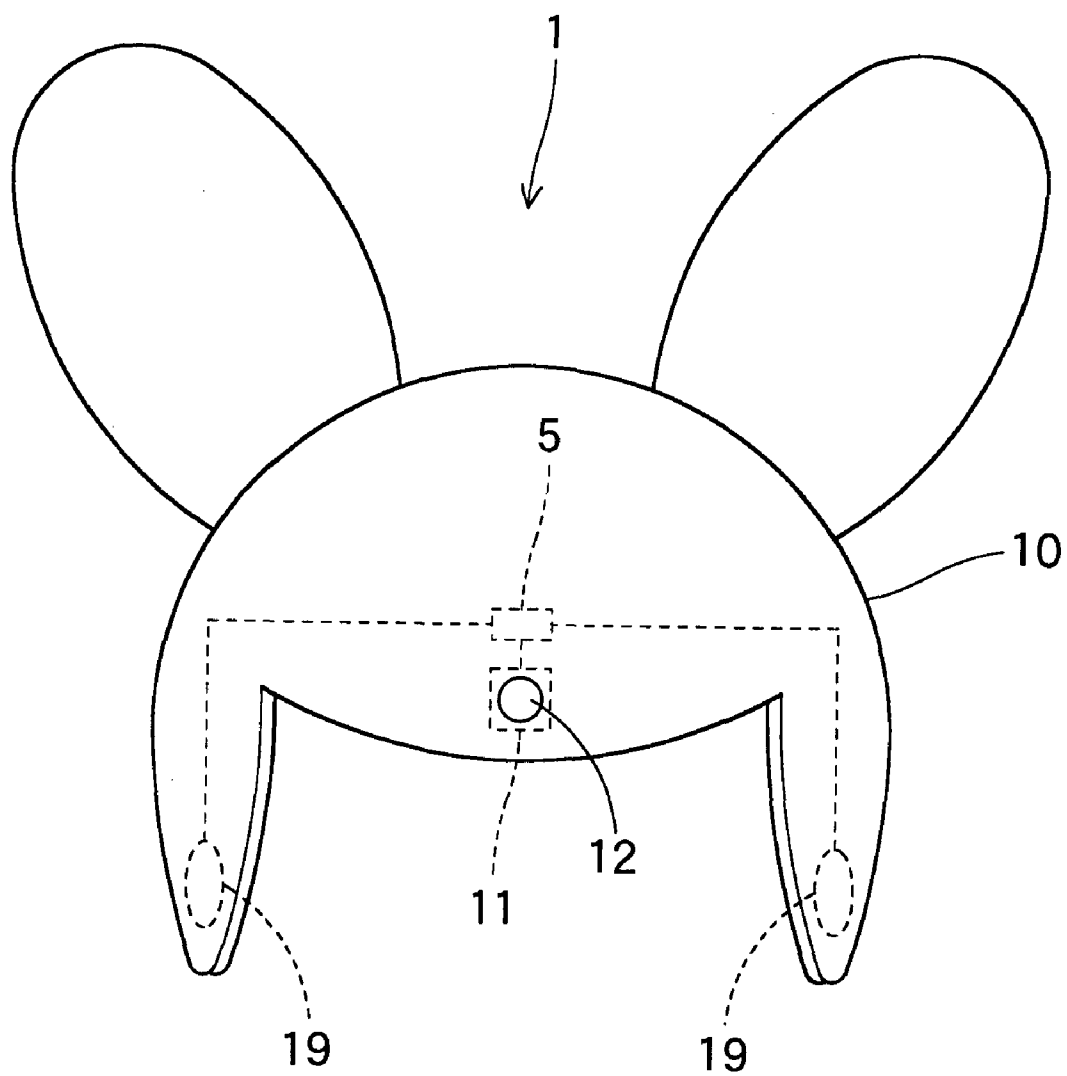


Fig. 2

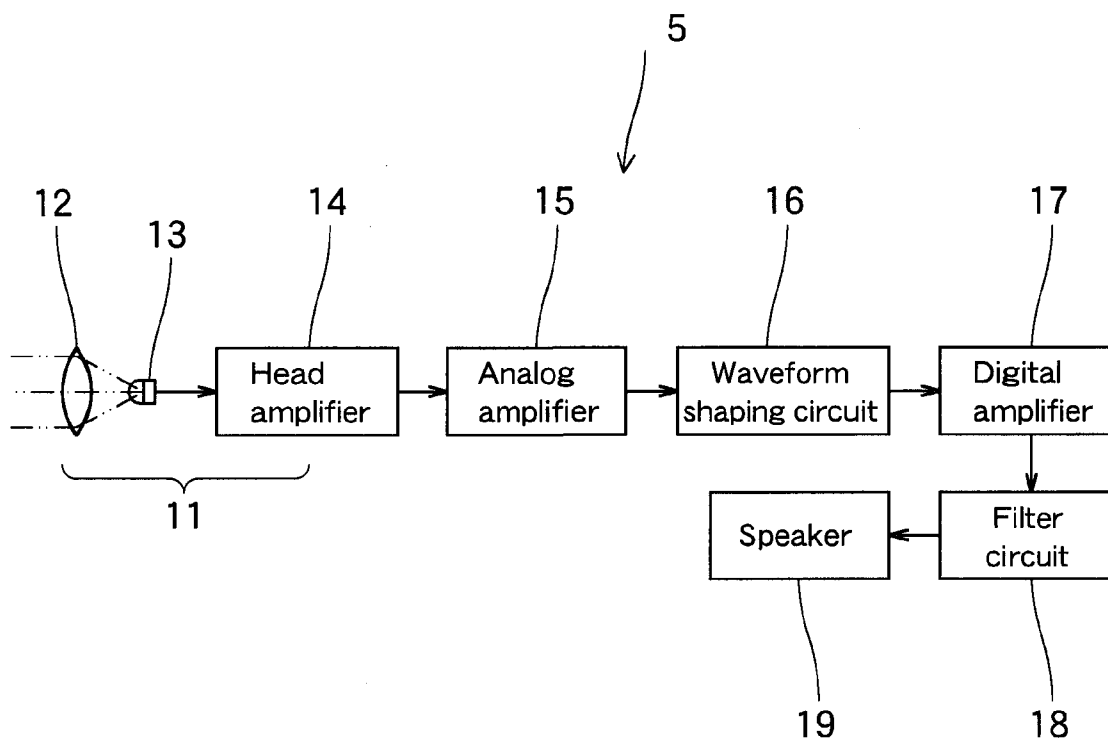


Fig. 3

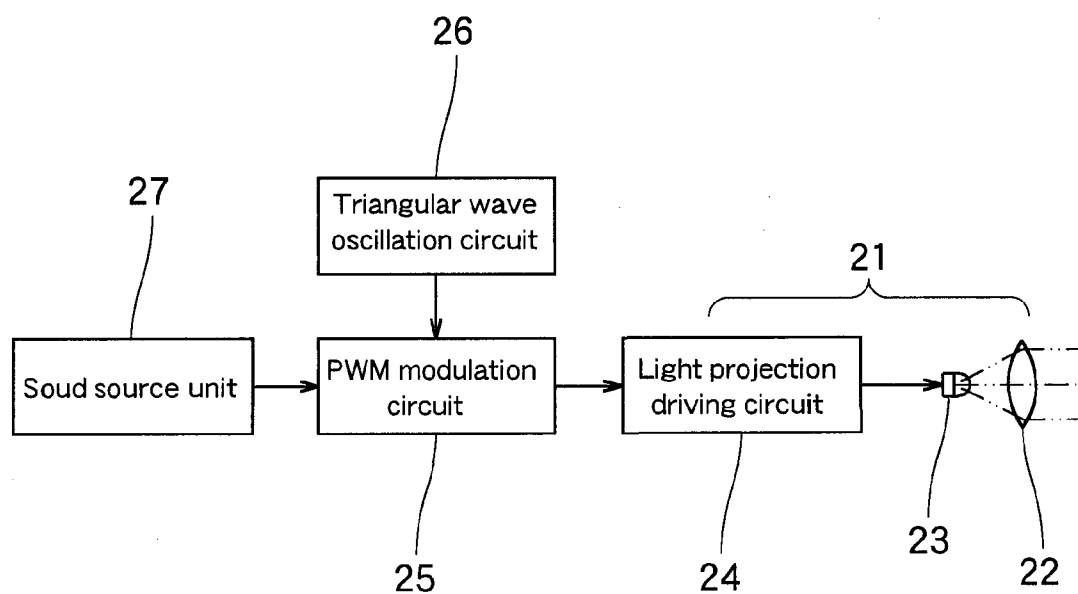


Fig. 4

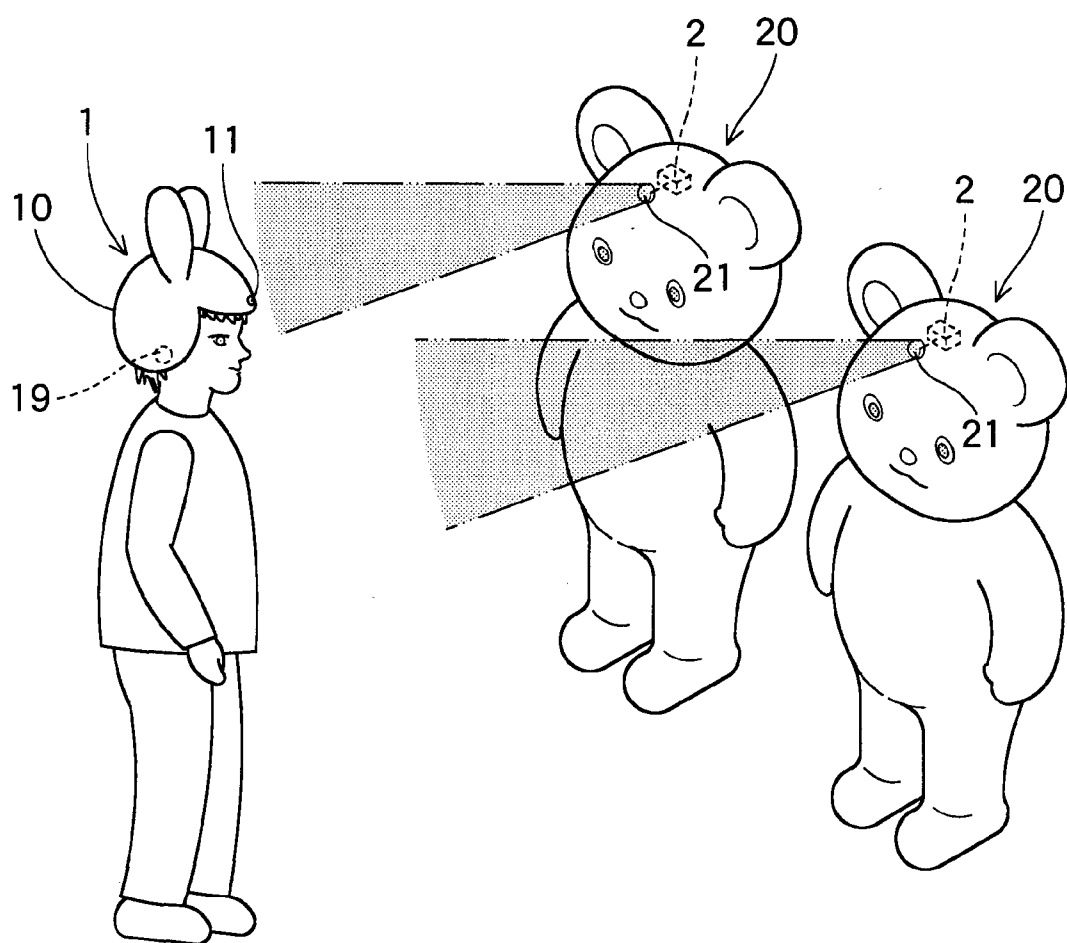


Fig. 5

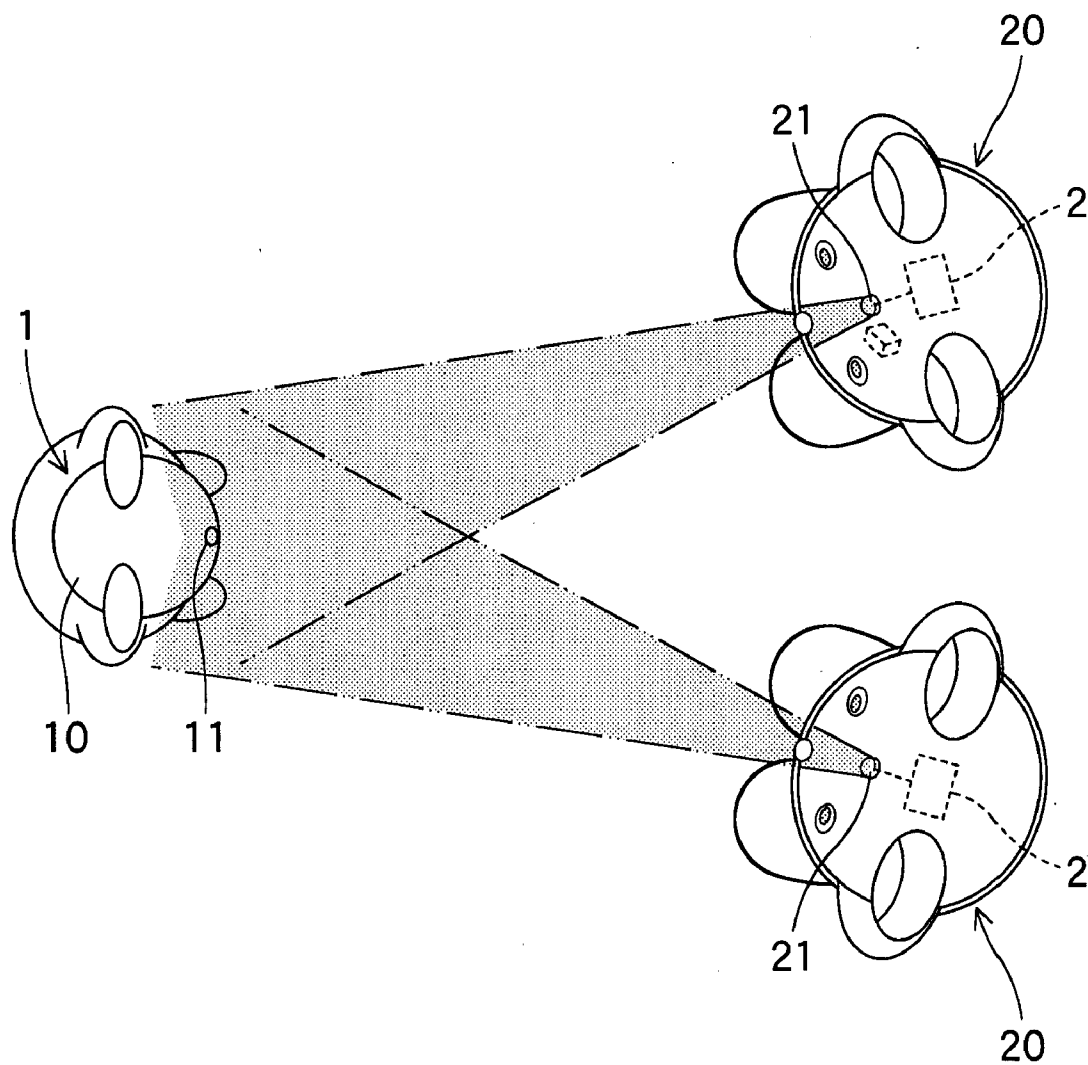


Fig. 6

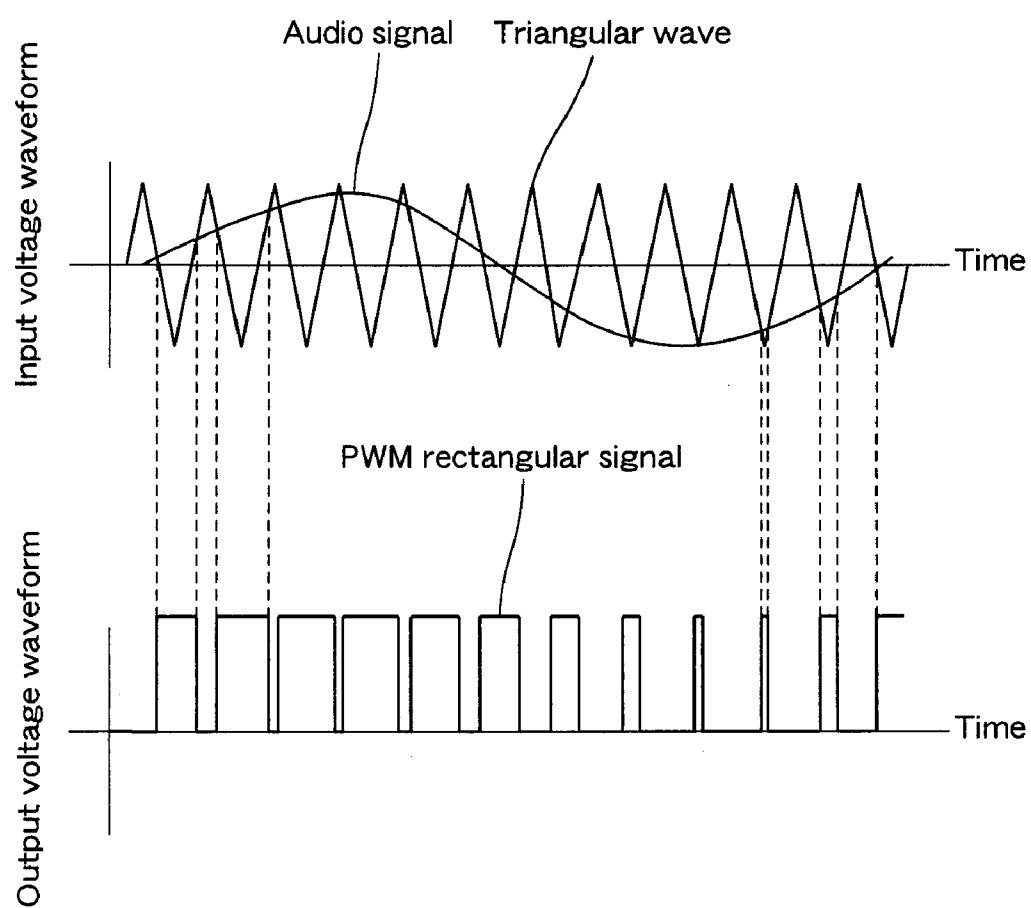


Fig. 7

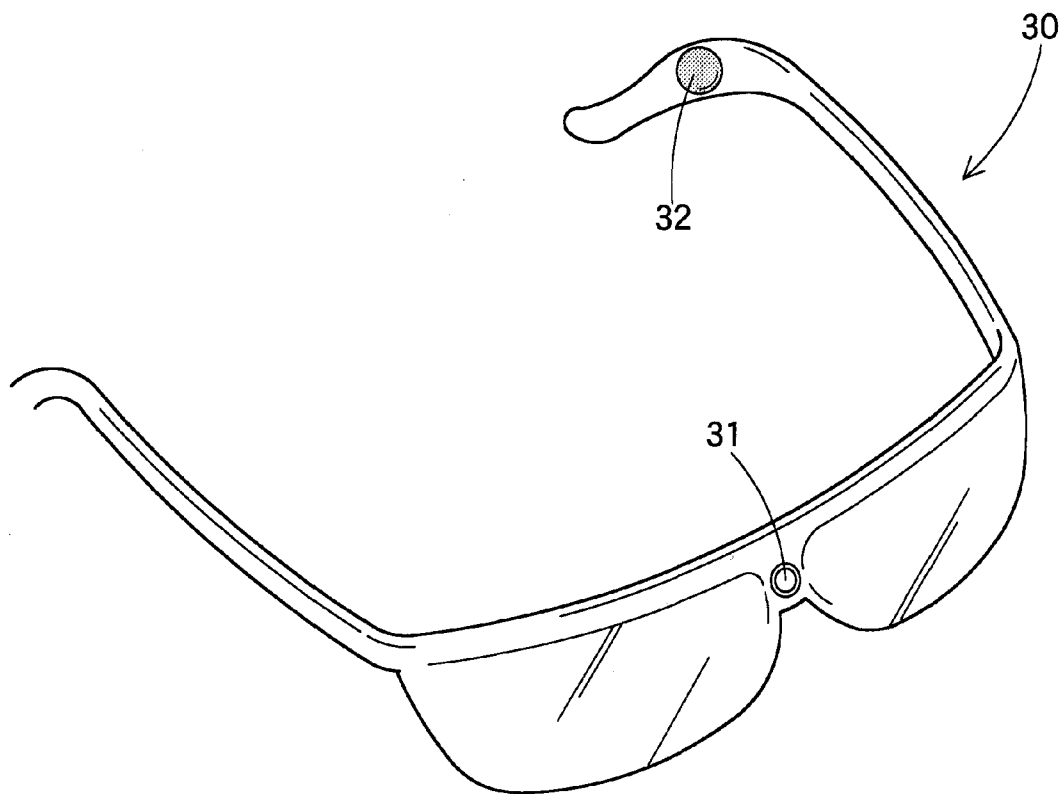


Fig. 8

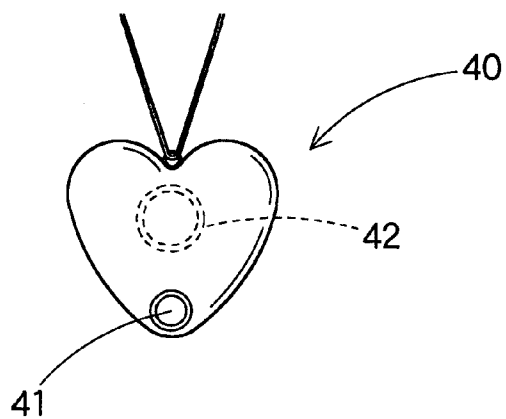
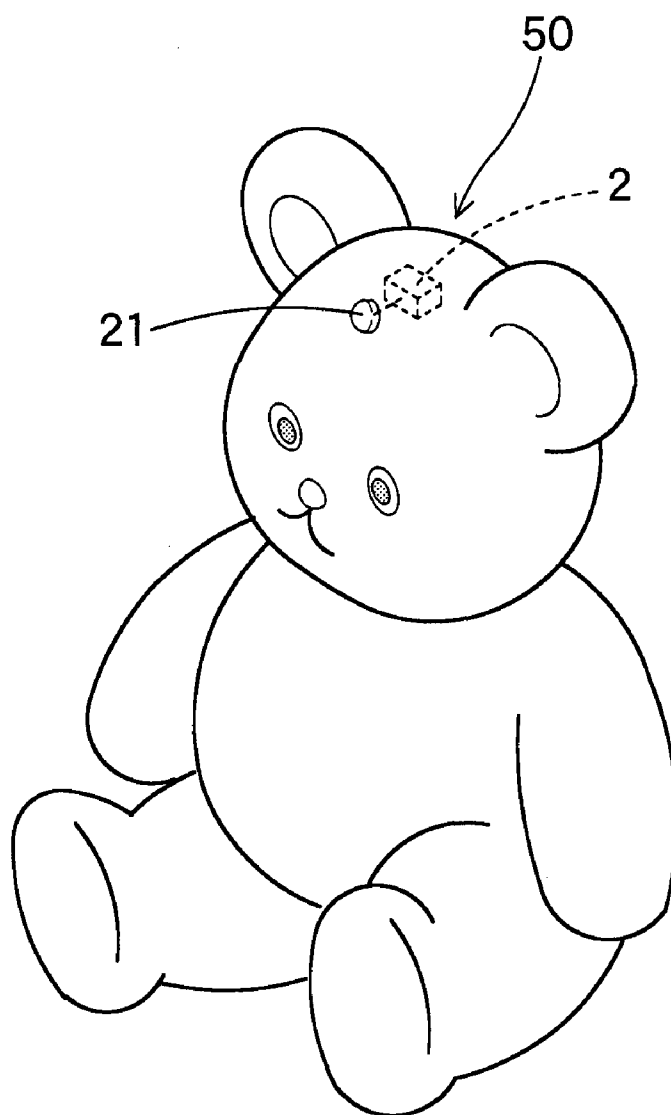


Fig. 9



AUDIO SIGNAL RECEPTION TYPE VOCALIZING TOY AND VOCALIZING TOY APPARATUS

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to an audio signal reception type vocalizing toy which is built into goods sold or supplied in a customer attraction facility such as a theme park and receives an audio signal to generate voice, and a vocalizing toy apparatus including a visible light transmitter which is used together with the audio signal reception type vocalizing toy, is built into a mascot costume type image character of a customer attraction facility, etc., and transmits the audio signal to the vocalizing toy by visible light communication.

[0003] 2. Description of Related Art

[0004] Recently, theme parks have been opened in various places, and many people have enjoyed facilities and attractions therein of the theme parks. In a theme park, a mascot costume type image character, etc., appears at the site and puts on a performance, etc., for many visitors for their enjoyment, with the aim of increasing park repeaters.

[0005] However, such a mascot costume type image character that only puts on performances for visitors, is likely to lose the interest of the visitors, and does not always contribute to the acquisition of repeaters.

[0006] Additionally, although the theme park sells various goods such as stuffed toys and caps of various image characters so that the visitor has a sense of unity with and enjoys the theme and image characters of the theme park, such conventional goods do not always contribute to an increase in repeaters.

[0007] That is, since operation form and usage form of such goods of an image character have no change in, for example, a home of a purchaser who returns from a theme park, the goods only have an effect of making the purchaser a fan by inspiring him/her to grow fond of an image character. This results in slightly giving a customer an incentive to become a repeater of the theme park. Further, such conventional goods become common as a sales period becomes longer, and new visitors are likely to lose interest in the theme park.

[0008] On the other hand, regarding a stuffed toy, a voice generating toy has been conventionally known, the toy being disclosed in Japanese Published Patent Application No. 2004-301942 A. However, in such a stuffed toy, voice is generated only by reproducing an audio signal pre-stored in a memory of a voice generator built into the stuffed toy. Therefore, if the stuffed toy is repeatedly used, users are also likely to lose interest. Accordingly, new attractive goods are required to be developed so as to increase repeat visitors of theme parks.

[0009] On the other hand, as an apparatus for transmitting voice guidance, a voice guidance apparatus for transmitting an audio signal for voice guidance to a visually impaired person approaching an automatic door has been conventionally known, the apparatus being disclosed in Japanese Published Patent Application No. 2000-320238 A. When a door open/close control sensor of an automatic door detects an approaching person, the voice guidance apparatus superimposes and transmits the audio signal for voice guidance on an infrared ray or radio wave in the vicinity of the person from a radio communication apparatus of infrared rays, radio waves, etc., and a visually impaired person receives the audio signal superimposed on the infrared ray or radio wave through a portable terminal or dedicated receiver. The portable terminal

or dedicated receiver receives the audio signal, demodulates the superimposed audio signal and reproduces the audio signal, and then operates so as to generate the voice guidance through a speaker, headphone, etc.

[0010] In the case where such a conventional voice guidance apparatus is set up in a customer attraction facility such as a theme park, a receiver toy is created in a manner of building a receiver in, for example, character goods, a visitor brings the receiver toy to the customer attraction facility and simply listens to the voice guidance of the audio signals transmitted by infrared rays or radio waves from the voice guidance apparatus through the receiver toy as a user, the infrared rays or radio waves non-selectively reach the receiver of the user and voice cannot be selectively made to reach each visitor. Thus, personalization cannot be performed for the visitor as natural selection of services and the visitor can hardly enjoy and obtain sufficient satisfaction, which makes the aim of increasing repeaters of customer attraction facilities difficult.

SUMMARY OF THE INVENTION

[0011] It is an object of the present invention to provide an audio signal reception type vocalizing toy and vocalizing toy apparatus capable of realizing personalization of service for visitors of a customer attraction facility, allowing the visitors to sufficiently enjoy and thus realizing an increase in repeaters.

[0012] The object of the present invention can be achieved by the audio signal reception type vocalizing toy and vocalizing toy apparatus constituted as follows. That is, the audio signal reception type vocalizing toy is an audio signal reception type vocalizing toy which a user as a visitor wears and uses in the customer attraction facility, the toy including: a light receiving unit which is arranged in the front of a wear type toy body and has a light receiving element for receiving visible light through a condensing lens; speaker(s) disposed in the wear type toy body; an amplifier for amplifying a signal output from the light receiving unit; and a filter circuit for integrating a digital audio signal output from the amplifier into an analog audio signal and outputting it to the speaker(s). When the user, in the customer attraction facility, directs the light receiving unit in the front of the wear type toy body to a visible light source of a visible light transmitter for superimposing and projecting an audio signal on visible light, the light receiving unit receives the visible light and picks up the audio signal contained in a light reception signal, and sound containing music, voice, etc., is generated by the speaker. Moreover, a small voice generator such as an earphone here belongs to the speaker.

[0013] Here, as the visible light, it is preferable to use blue light or white light containing a blue light component. Additionally, in the case where the blue light or white light containing the blue light component is used, it is preferable to use, as a light receiving element of the light receiving unit, a photodiode for blue laser capable of receiving the blue light at high sensitivity. Additionally, as the wear type toy body, the following toys are applicable: a cap type toy which a user puts on his/her head; a glasses type toy which is attached to a face; and a pendant type toy which is attached to a chest. In the case where the cap type toy is used as the wear type toy body, the light receiving unit including the condensing lens may be arranged at the approximate center of the front of the cap type toy, and the speakers may be arranged in the vicinity of ears at both sides of the cap type toy.

[0014] On the other hand, the vocalizing toy apparatus of the present invention includes: the audio signal reception type vocalizing toy which a visitor wears in a customer attraction facility; and a visible light transmitter which is attached to an image character or installed object of the customer attraction facility and projects visible light, on which an audio signal is superimposed, to the audio signal reception type vocalizing toy. The audio signal reception type vocalizing toy includes: the light receiving unit which is arranged in the front of the wear type toy body and has the light receiving element for receiving visible light through the condensing lens; the speaker(s) disposed in the wear type toy body; the amplifier for amplifying a signal output from the light receiving unit; and the filter circuit for integrating a digital audio signal output from the amplifier into an analog audio signal and outputting it to the speaker(s). When the user, in the customer attraction facility, directs the light receiving unit in the front of the wear type toy body to the visible light source of the visible light transmitter for superimposing and projecting an audio signal on visible light, the light receiving unit receives the visible light and picks up the audio signal contained in the light reception signal and sound containing music, voice, etc., is generated by the speaker. The visible light transmitter includes: a sound source unit as a sound source for outputting an analog audio signal; a modulating circuit into which the analog audio signal output from sound source unit is input and which modulates the signal to generate an audio transmission signal; and a light projecting unit which makes a light projecting element drive to superimpose the audio transmission signal on visible light and projects the visible light from the light projecting element through a condensing lens, and projects visible light condensed and having directionality to the audio signal reception type vocalizing toy and transmits the audio signal.

[0015] Here, as the visible light to be projected from the light projecting unit, blue light or white light containing a blue light component is used. It is preferable that a blue light emitting diode is used as the light projecting element. Additionally, the visible light transmitter is built into a head, chest, etc., of the image character performing in the customer attraction facility, and the light projecting unit is attached to the front of the head of the image character so as to face forward, and projects the visible light condensed and having the directionality in a direction that the head or chest of the image character faces. Additionally, as the modulating circuit, a PWM modulation circuit is preferably used which subjects an analog audio signal to PWM modulation to generate an audio transmission signal.

[0016] In the audio signal reception type vocalizing toy and vocalizing toy apparatus according to the present invention, in the case where, for example, the cap type toy is used as the wear type toy body of the audio signal reception type vocalizing toy, a user puts the vocalizing toy on his/her head, the visible light transmitter is attached to, for example, a head of a mascot costume type image character in the customer attraction facility, and the visible light, on which the audio signal is superimposed, is condensed, provided with directionality in a relatively narrow range, and projected, forward from the image character, from the light projecting unit which is the visible light source of the visible light transmitter, in the customer attraction facility such as a theme park.

[0017] Since in this state, the projected visible light is, for example, blue light or white light and the blue light or white light is projected as a conical luminous flux, the visitor of the

customer attraction facility can, by using the visible light as a mark, easily visually confirm a sending source of service by the image character.

[0018] Additionally, when the blue light or white light containing the blue light component is used as visible light to be projected on which an audio signal is superimposed, the photodiode for blue laser having high sensitivity and high responsiveness can be used for the light receiving element. Further, a blue light emitting diode operating at high speed, or a white light emitting diode for emitting white light by irradiating the blue light of the blue light emitting diode onto a yellow phosphor can be used for the light projecting element. Thus, PWM modulation for performing modulation by a high frequency signal of several hundred KHz to several MHz can be adopted for visible light communication.

[0019] Accordingly, compared with the conventional case of using generally adopted FM modulation, FSK modulation or the like when transmitting an audio signal by radio communication, neither a complicated demodulating circuit nor a wave detecting circuit is necessary for a receiver, and an electric circuit on the reception side can be extremely simplified while the sound quality of voice output by the receiver is kept excellent. Thus, the manufacturing cost of a visible light receiver, audio signal reception type vocalizing toy, is remarkably reduced, and an extremely low-priced vocalizing toy can be provided for users.

[0020] Additionally, since an average level of digital signals with the PWM modulation is constantly fixed, the luminance of visible light, on which a signal is superimposed, is approximately fixed and is unchanged regardless of volume and modulation frequency. Therefore, a user seeing the visible light does not feel discomfort. Additionally, in the case where the visible light transmitter and the audio signal reception type vocalizing toy approach each other or move away from each other, little influence is caused to the volume and sound quality if the level of the light reception signal on the reception side is not less than a preset threshold. Furthermore, in the case where the distance between the transmitter and toy further move away from each other and the level of the light reception signal is less than the threshold, no voice is only generated. This case is similar to the case where the power of the audio signal reception type vocalizing toy is turned off, and causes no displeasure to the user.

[0021] In a state where a user wearing the vocalizing toy, during usage, approaches, for example, a mascot costume type image character projecting blue or white visible light and approximately faces the front of the mascot costume, the light receiving unit of the vocalizing toy is directed to the light projecting unit of the visible light transmitter, and the visible light, on which the audio signal is superimposed, is projected from the light projecting unit of the visible light transmitter and received by the light receiving unit of the audio signal reception type vocalizing toy.

[0022] At this time, the light receiving element of the light receiving unit subjects light to photoelectric conversion and outputs a light reception signal, the signal is amplified, and then integrated into an analog audio signal to be output to the speaker(s) by the filter circuit. Thus, voice, for example, "I am . . . Good afternoon!," is generated by the speaker, the user can, with a great sense of closeness, listen to the voice just like a greeting from the image character.

[0023] Additionally, the user of the vocalizing toy recognizes the voice of the greeting as not a common expression sent to the general public but as an expression of which the

content is extremely naturally selected and which is sent from the image character only to him/her, and thus can obtain a great impression.

[0024] Particularly, in the case where in the customer attraction facility, a plurality of image characters (for example, John and Mary) are juxtaposed and the visible light having the directionality is projected to a user from each of the visible light transmitters attached to mascot costumes of the image characters, the user wearing the vocalizing toy, selectively, can listen to the voice of John, for example, "I am John. Good afternoon!," when facing John, or can selectively listen to the voice of Mary, for example, "I am Mary. Good afternoon!," when facing Mary.

[0025] Thus, the user, when facing John or Mary who are image characters, can feel that the image characters are just talking to him/her, and thus natural service selection and personalization can be effectively presented to the visitor.

[0026] In the case where the user thus wears the audio signal reception type vocalizing toy and enters the customer attraction facility, the user can obtain a greater fresh and enjoyable experience compared with the case of putting the audio signal reception type vocalizing toy in his/her home, etc., and the experience can be obtained only in the customer attraction facility. Since this greatly inspires users to visit the customer attraction facility again, the aim of increasing repeaters can be realized by using such an audio signal reception type vocalizing toy in the customer attraction facility.

BRIEF DESCRIPTION OF THE DRAWINGS

[0027] FIG. 1 is a front view of a cap type toy as an audio signal reception type vocalizing toy of an embodiment of the present invention.

[0028] FIG. 2 is a block diagram of a visible light receiver of the cap type toy.

[0029] FIG. 3 is a block diagram of a visible light transmitter.

[0030] FIG. 4 is an explanatory perspective view of a vocalizing toy apparatus.

[0031] FIG. 5 is an explanatory plan view of the vocalizing toy apparatus.

[0032] FIG. 6 is an explanatory waveform diagram when a triangular wave and an audio signal are used and PWM modulation is performed.

[0033] FIG. 7 is a perspective view of a glasses type toy as an audio signal reception type vocalizing toy of another embodiment of the present invention.

[0034] FIG. 8 is a perspective view of a pendant type toy as an audio signal reception type vocalizing toy of the other embodiment of the present invention.

[0035] FIG. 9 is a perspective view of a stuffed toy of an image character in which the visible light transmitter is built.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0036] Hereinafter, embodiments of the present invention will be described with reference to the drawings. Moreover, the present invention is not limited to the embodiments. Various modifications in the components of the appended claims or equivalents to the components are within the scope of the appended claims.

[0037] FIG. 1 is a front view of a cap type toy 1 as an audio signal reception type vocalizing toy, FIG. 2 is a block diagram

of an electric circuit of a visible light receiver 5 built into the toy 1, and FIG. 3 is a block diagram of a visible light transmitter 2.

[0038] A wear type toy body 10 is formed in a cap shape in the cap type toy 1 as an audio signal reception type vocalizing toy as shown in FIG. 1, and a user puts and uses the body on his/her head. Additionally, the wear type toy body 10 is formed in the cap shape by modeling the outer appearance of an image character in a customer attraction facility such as a theme park. A light receiving unit 11 is attached to the approximate center of the front of the body 10 so as to face forward. In the light receiving unit 11, a light receiving element 13 is provided which receives and subjects visible light to photoelectric conversion to output a light reception signal, a condensing lens 12 is arranged in the front of the light receiving element 13, and visible light incident from the front is condensed so as to be projected to the light receiving element 13.

[0039] As the light receiving element 13, for example, a photodiode for blue laser is used which receives blue visible light at high sensitivity, subjects the received light to photoelectric conversion at high conversion efficiency, has high responsiveness and outputs the light reception signal.

[0040] A light receiving element such as a photo transistor, which has been conventionally used, for receiving red or yellow visible light or infrared rays has sensitivity and response speed lower than those of the light receiving element 13 for which the photodiode for blue laser is used. The conventional light receiving element can neither receive visible light, on which PWM modulation has already been performed at a high frequency of several hundred kHz to several MHz, nor pick up an audio signal having high fidelity and excellent sound quality, although the light receiving element 13, for which the photodiode for blue laser is used, of the present invention can perform them.

[0041] In the light receiving unit 11, a head amplifier 14 is connected to the light receiving element 13 and the light reception signal output from the light receiving element 13 is first amplified and output by the head amplifier 14. An analog amplifier 15 is connected to an output side of the head amplifier 14 as shown in FIG. 2 so that an input signal is amplified in an analog manner as it is. An output side of the analog amplifier 15 is connected to a waveform shaping circuit 16 in which a comparator is used, and the waveform shaping circuit 16 removes a DC component from the light reception signal to shape the waveform of the signal.

[0042] Since the light reception signal is amplified by the analog amplifier 15 although basically being an AC rectangular signal with the PWM modulation, the DC component is superimposed on the signal. The light reception signal is made to pass through the waveform shaping circuit 16, and thus the DC component is removed and the light reception signal is output as a rectangular wave signal having a shaped waveform. A digital amplifier 17 is connected to an output side of the waveform shaping circuit 16, and the rectangular wave signal output from the waveform shaping circuit 16 is transmitted to the digital amplifier 17 to be amplified as a digital signal.

[0043] As shown in FIG. 2, a filter circuit 18 is connected to an output side of the digital amplifier 17. The filter circuit 18 is constituted by a low-pass filter including a coil L and a capacitor C, and returns and outputs the received signal into an analog audio signal before being subjected to the PWM modulation in a manner of changing the AC rectangular wave

signal with the PWM modulation into a smooth analog signal. An output side of the filter circuit 18 is connected to speakers 19, and the audio signal received by the visible light receiver 5 of the cap type toy 1 is generated into voice at the ears of the user by driving the speakers 19.

[0044] As described above, when the blue light is used as visible light to be projected, on which an audio signal is superimposed, a blue light emitting diode capable of performing switching operation at high speed can be used for a light projecting element 23 described later of the visible light transmitter 2 in the case where the photodiode for blue laser having high sensitivity and high speed responsiveness is used for the light receiving element 13. Thus, the PWM modulation for performing modulation by a high frequency signal of several hundred KHz to several MHz can be adopted.

[0045] Therefore, compared with the conventional case of using generally adopted FM modulation, FSK modulation or the like in transmitting an audio signal by radio communication, neither a complicated demodulating circuit nor a wave detecting circuit is necessary for a receiver, and an electric circuit on the reception side can be extremely simplified while the sound quality of voice output by the receiver is kept excellent. Accordingly, the manufacturing cost of the visible light receiver 5, the cap type toy 1, is remarkably reduced, and an extremely low-priced vocalizing toy can be provided for the user in the customer attraction facility.

[0046] As shown in FIGS. 4, 5, the visible light transmitter 2 is attached to a mascot costume type image character 20 in the customer attraction facility, and projects the visible light, on which the audio signal is superimposed, to the cap type toy 1. The visible light transmitter 2 can be attached to not only such a mascot costume but also various installed objects and exhibits in the customer attraction facility.

[0047] An electric circuit of the visible light transmitter 2 includes, as shown in FIG. 3: a sound source unit 27 as a sound source for outputting an analog audio signal; a PWM modulation circuit 25 into which the analog audio signal output from the sound source unit 27 is input and which subjects the analog audio signal to the PWM modulation to generate an audio transmission signal; and a light projecting unit 21 which makes a light projecting element 23 drive to superimpose the audio transmission signal on visible light and projects the visible light from the light projecting element 23 through a condensing lens 22, and projects visible light condensed and having directionality to the cap type toy 1 and transmits the audio signal.

[0048] The sound source unit 27 is a unit as a sound source for outputting an audio signal. As the sound source unit 27, the following units can be used, for example: an audio reproducing unit for reading and reproducing a digital audio signal stored in an MD, CD, semiconductor memory, hard disk or the like as a recording media and outputting the signal as an analog audio signal; a unit for converting and outputting an audio signal transmitted through a network into an analog audio signal; and a unit for converting and outputting voice of a person in a mascot costume type image character into an audio signal through a microphone. As shown in FIG. 3, an output side of the sound source unit 27 is connected to an input side of the PWM modulation circuit 25, and a triangular wave oscillation circuit 26 is further connected to a triangular wave input side of the PWM modulation circuit 25.

[0049] The triangular wave oscillation circuit 26 is a circuit for oscillating and outputting, for example, a triangular wave signal having a high frequency of approximately 800 KHz,

and the PWM modulation circuit 25 takes the triangular wave signal in from the triangular wave oscillation circuit 26 and takes the analog audio signal in from the sound source unit 27. Both the signals are input into a reverse input side and a non-reverse input side of a comparator respectively, a PWM signal for switching in accordance with a magnitude relationship between the signals is output from the comparator, and the PWM modulation is performed.

[0050] A pulse-shaped PWM rectangular signal having, by such PWM modulation, a pulse width in accordance with the level of the analog audio signal is output from the PWM modulation circuit 25 to a light projection driving circuit 24, the rectangular signal being shown in FIG. 6. The light projection driving circuit 24 of the light projecting unit 21 is connected to an output side of the PWM modulation circuit 25 as shown in FIG. 3, the light projecting unit 21 light projection-drives the light projecting element 23 by the light projection driving circuit 24, and blue light or visible light containing a blue light component, which is especially easily recognized, is projected from the light projecting element 23. The light projecting unit 21 is attached to, for example, the front of a head of the mascot costume type image character 20 in the customer attraction facility so as to face forward as shown in FIGS. 4, 5, condenses the blue visible light through the condensing lens 22, and provides and projects the light with the directionality forward.

[0051] Generally, the mascot costume type image character 20 is moved by a person wearing it and various performances are performed for visitors by the person. However, a robot other than a person can be made to wear and move the mascot costume, or the visible light transmitter 2 can be attached to not the mascot costume but an object which is installed in the customer attraction facility and formed by modeling the image character.

[0052] Next, operation of the audio signal reception type vocalizing toy and vocalizing toy apparatus constituted as the above will be described. The cap type toy 1 as the audio signal reception type vocalizing toy is formed by modeling the head of the image character 20 in the customer attraction facility such as a theme park as described above, sold in the customer attraction facility, etc., and the user purchases it.

[0053] The user (visitor) puts the cap type toy 1 on his/her head, and enjoys the performance of image character 20, etc., in the customer attraction facility. Since, as described above, the visible light transmitter 2 is attached to the head of the mascot costume type image character 20 and the light projecting unit 21 is arranged in the front of the head of the mascot costume so as to face forward, the blue visible light, on which the audio signal is superimposed, is condensed, provided with directionality in a narrow range and projected forward from the light projecting unit 21 in a direction that the head of the mascot costume type image character 20 faces.

[0054] Since the blue visible light is projected as a conical luminous flux in this state, the visitor, user, can easily visually confirm a sending source of service of the image character 20 by using the blue visible light as a mark.

[0055] When the user wearing the cap type toy 1 approaches the mascot costume type image character 20 projecting the blue visible light and approximately faces the front of the mascot costume, the light receiving unit 11 of the cap type toy 1 directs the light receiving unit of the vocalizing toy to the light projecting unit 21 of the visible light transmitter 2 and receives the visible light, which is projected from the light

projecting unit **21** of the visible light transmitter **2** and on which the audio signal is superimposed, as shown in FIG. 4.

[0056] The light receiving unit **11** outputs the light reception signal, the output signal is amplified, and then it is integrated into the analog signal and output to the speakers **19** by the filter circuit **18**. Voice, for example, "I am . . . Good afternoon!" is generated by the speaker **19**. Thus, the user can listen to the voice just like a greeting from the image character **20** only to him/her.

[0057] Thus, the user of the vocalizing toy recognizes the voice of the greeting as not a common expression to many people but as an expression of which the content is extremely naturally selected and which is sent from the image character **20** only to him/her, and thus can obtain a great impression.

[0058] Additionally, in the case where as shown in FIGS. 4, 5, the plurality of image characters **20** (for example, John and Mary) are juxtaposed and the blue light or visible light having the blue light component, which is condensed and provided with the directionality, is projected to the user from each of the visible light transmitters **2** attached to the mascot costume type image characters **20**, the user wearing the cap type toy **1** can listen to the voice of John, for example, "I am John. Good afternoon!" when facing John, or selectively listen to the voice of Mary, for example, "I am Mary. Good afternoon!" when facing Mary.

[0059] Thus, the user can feel, when facing John or Mary of the image character **20**, that the image character just talks to him/her, and natural service selection and effect personalization can be presented to the visitor.

[0060] In the case where the user thus wears the cap type toy **1** and enters the customer attraction facility, the user can have an even fresher and enjoyable experience that can be obtained only in the facility, compared with the case of putting the cap type toy in his/her home. Therefore, a strong motivation to visit the customer attraction facility again is created for the user. Such provision of the cap type toy **1** for the visitors in the customer attraction facility securely allows an increase in repeaters to be realized.

[0061] Moreover, although the blue light is used as the visible light in the above embodiment, the same effect can be obtained even if a single color light such as a purple light or a green light is used which has a wavelength approximating that of the blue light. Additionally, visible light (white light) containing the blue light can be projected by using a white light emitting diode which irradiates the blue light of the blue light emitting diode onto a yellow phosphor so the yellow light is emitted, and combines the yellow light with the blue light to generate white light. Since such white light contains a large quantity of blue light components, the photodiode for blue laser having high sensitivity and high speed responsiveness can be used as the light receiving element.

[0062] Additionally, although the cap type toy **1** is used as the audio signal reception type vocalizing toy in the above embodiment, a glasses type toy **30** to be attached to a face or a pendant type toy **40** to be attached to a chest may be used, the toys **30**, **40** being shown in FIGS. 7, 8. In the case of using the glasses type toy **30**, a light receiving unit **31** including a condensing lens and the head amplifier **14** described above are arranged at the approximate center of the front of the glasses type toy **30**, and a speaker **32**, the analog amplifier **15** described above, waveform shaping circuit **16**, digital amplifier **17** and filter circuit **18** may be arranged inside of the vicinity of the ears at both sides of the glasses type toy **30**. In the case of using the pendant type toy **40**, a light receiving unit

41 including a condensing lens is arranged in the front of the pendant type toy **40**, and a speaker **42**, the head amplifier **14** described above, analog amplifier **15**, waveform shaping circuit **16**, digital amplifier **17** and filter circuit **18** may be arranged in the pendant type toy **40**.

[0063] Further, although the visible light transmitter **2** is built into the head of the mascot costume type image character **20** in the above embodiment, it may be, as shown in FIG. 9, built into a body of a stuffed toy type image character **50** so that the light projecting unit **21** is attached to the front of the image character **50** so as to face forward. In this case, the image character **50** is provided for the visitors in the customer attraction facility, etc., and the visitor takes the stuffed toy of image character **50** together with the cap type toy **1**, etc., home and can enjoy them at the home.

What is claimed is:

1. An audio signal reception type vocalizing toy which a user as a visitor wears and uses in a customer attraction facility, the toy comprising:

a light receiving unit arranged in the front of a wear type toy body and having a light receiving element for receiving visible light through a condensing lens;

speaker(s) arranged in the wear type toy body;

an amplifier for amplifying a signal output from the light receiving unit; and

a filter circuit for integrating a digital audio signal, which is output from the amplifier, into an analog audio signal and outputting it to the speaker(s),

wherein when the user directs the light receiving unit arranged in the front of the wear type toy body to a visible light source of a visible light transmitter for projecting visible light, on which an audio signal is superimposed, in the customer attraction facility, the light receiving unit receives the visible light, the amplifier amplifies the audio signal contained in a light reception signal output from the light receiving unit, the filter circuit integrates a digital audio signal output from the amplifier into an analog audio signal and transmits it to the speaker(s), and the speaker generates sound containing music, voice, etc.

2. The audio signal reception type vocalizing toy according to claim 1, wherein the visible light is blue light or white light containing a blue light component.

3. The audio signal reception type vocalizing toy according to claim 2, wherein the light receiving element of the light receiving unit is a photodiode for blue laser capable of receiving blue light at high sensitivity.

4. The audio signal reception type vocalizing toy according to claim 1, wherein the wear type toy body is a cap type toy which a user puts on his/her head.

5. The audio signal reception type vocalizing toy according to claim 1, wherein the wear type toy body is a glasses type toy which a user puts on his/her face.

6. The audio signal reception type vocalizing toy according to claim 1, wherein the wear type toy body is a pendant type toy to be attached to a chest.

7. The audio signal reception type vocalizing toy according to claim 4, wherein the light receiving unit including the condensing lens is arranged at the approximate center of the front of the cap type toy and the speakers are arranged in the vicinity of ears at both sides of the cap type toy.

8. A vocalizing toy apparatus comprising:
 an audio signal reception type vocalizing toy which a user as a visitor wears and uses in a customer attraction facility; and
 a visible light transmitter which is attached to an image character or installed object in the customer attraction facility and projects visible light, on which an audio signal is superimposed, to the audio signal reception type vocalizing toy,
 the audio signal reception type vocalizing toy including:
 a light receiving unit arranged in the front of a wear type toy body and having a light receiving element for receiving visible light through a condensing lens;
 speaker(s) arranged in the wear type toy body;
 an amplifier for amplifying a signal output from the light receiving unit; and
 a filter circuit for integrating a digital signal, which is output from the amplifier, into an analog audio signal and outputting it to the speaker(s),
 wherein when the user directs the light receiving unit arranged in the front of the wear type toy body to a visible light source of the visible light transmitter for projecting visible light, on which an audio signal is superimposed, in the customer attraction facility, the light receiving unit receives the visible light, the amplifier amplifies the audio signal contained in a light reception signal output from the light receiving unit, the filter circuit integrates a digital audio signal output from the amplifier into an analog audio signal and transmits it to the speaker(s), and the speaker generates sound containing music, voice, etc., and
 the visible light transmitter which projects the visible light and transmits the audio signal superimposed on the projected light to the audio signal reception type vocalizing toy, the transmitter including:

a sound source unit as a sound source for outputting an analog audio signal;
 a modulating circuit into which input the analog audio signal output from the sound source unit and which modulates the analog audio signal into an audio transmission signal to be generated; and
 a light projecting unit which makes a light projecting element drive to superimpose the audio transmission signal on visible light and projects the visible light from the light projecting element.

9. The vocalizing toy apparatus according to claim **8**, wherein the visible light projected by the light projecting unit is blue light or white light containing a blue light component and the light projecting element is a blue light emitting diode or white light emitting diode.

10. The vocalizing toy apparatus according to claim **8**, wherein the modulating circuit is a PWM modulation circuit for subjecting an analog audio signal to PWM modulation to generate an audio transmission signal.

11. The vocalizing toy apparatus according to claim **8**, wherein the visible light transmitter is built into a body of an image character putting on performances in the customer attraction facility, and the light projecting unit is attached to the front of the image character so as to face forward and projects visible light, which is condensed through the condensing lens and provided with directionality, in a direction that the image character faces.

12. The vocalizing toy apparatus according to claim **8**, wherein the visible light transmitter is built into a mascot costume type or a stuffed toy type image character and the light projecting unit is attached to the front of the image character so as to face forward.

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