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शासकीय जर्नल

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(71)**Name of Applicant :**
1)Brainware University, Kolkata
Address of Applicant :398, Ramkrishnapur Rd, Near Jagadighata Market, Barasat, Kolkata, West Bengal 700125 ---------- ----------
Name of Applicant : NA
Address of Applicant : NA
(72)**Name of Inventor :**
1)Mr. Abhishek Banerjee
Address of Applicant :Assistant Professor, Department of CSE, School of Engineering, Brainware University, 398, Ramkrishnapur Road, Barasat, Pin-700125 ---------- ----------
2)Dr. Debdutta Paul
Address of Applicant :HOD, Department of CSE, School of Engineering, Brainware University, 398, Ramkrishnapur Road, Barasat, Pin-700125 ---------- ----------
3)Sadmaan Warshi
Address of Applicant :Student, Department of CSE(AI-ML), School of Engineering, Brainware University, 398, Ramkrishnapur Road, Barasat, Pin-700125 ---------- ----------
4)Rahul Dutta
Address of Applicant :Student, Department of CSE(AI-ML), School of Engineering, Brainware University, 398, Ramkrishnapur Road, Barasat, Pin-700125 ---------- ----------
5)Dibyendu Deb
Address of Applicant :Student, Department of CSE(AI-ML), School of Engineering, Brainware University, 398, Ramkrishnapur Road, Barasat, Pin-700125 ---------- ----------
6)Md.Usman Ansari
Address of Applicant :Student, Department of CSE(AI-ML), School of Engineering, Brainware University, 398, Ramkrishnapur Road, Barasat, Pin-700125 ---------- ----------

(57) Abstract :
The Extra Sense for Blind and Deaf project has developed a wearable device that helps visually and hearing-impaired individuals navigate their surroundings with confidence and speed by detecting nearby objects and obstacles using ultrasonic waves. The device, which is designed to be worn as a spectacle, emits ultrasonic waves and alerts the wearer through sound and vibration when obstacles are detected. The device has several advantages over existing products in the market, including affordability, reliability, ease of use and operation, and wide range coverage. The device's working principle involves several components such as an Arduino Nano, ultrasonic sensor, vibrating motor, buzzer module, beard board, spectacle glass, red-colored LED, switches, connecting wire, male and female header pins, and a 3.3-volt. The unique features of the invention include the ability to detect obstacles in the front of the person, vibration alerts for deaf individuals, and wide range coverage. Accompanied Drawing [FIG. 3]

No. of Pages : 21 No. of Claims : 9

"**FORM 1** THE PATENTS ACT 1970 (39 of 1970) and THE PATENTS RULES, 2003 **APPLICATION FOR GRANT OF PATENT** (See section 7, 54 and 135 and sub-rule (1) of rule 20)				(FOR OFFICE USE ONLY)	
		Application No.			
		Filing date:			
		Amount of Fee paid:			
		CBR No:			
		Signature:			
1. APPLICANT'S REFERENCE / IDENTIFICATION NO. (AS ALLOTTED BY OFFICE)					
2. TYPE OF APPLICATION [Please tick (✓) at the appropriate category]					
Ordinary (✓)		Convention ( )		PCT-NP ( )	
Divisional ( )	Patent of Addition ( )	Divisional ( )	Patent of Addition ( )	Divisional ( )	Patent of Addition ( )
3A. APPLICANT(S)					
Name in Full		Nationality	Country of Residence	Address of the Applicant	
Brainware University, Kolkata		Indian	India	398, Ramkrishnapur Rd, Near Jagadighata Market, Barasat, Kolkata, West Bengal 700125	
3B. CATEGORY OF APPLICANT [Please tick (✓) at the appropriate category]					
Natural Person ()		Other than Natural Person			
		Small Entity ( )	Startup ()	Others (✓)	
4. INVENTOR(S) [Please tick (✓) at the appropriate category]					
Are all the inventor(s) same as the applicant(s) named above?		Yes ()		No (✓)	
If "No", furnish the details of the inventor(s)					
Name in Full		Nationality	Country of Residence	Address of the Inventor	
1. Mr. Abhishek Banerjee		Indian	India	Assistant Professor, Department of CSE, School of Engineering, Brainware University, 398, Ramkrishnapur Road, Barasat, Pin-700125	

2. Dr. Debdutta Paul	Indian	India	HOD, Department of CSE, School of Engineering, Brainware University, 398, Ramkrishnapur Road, Barasat, Pin-700125
3. Sadmaan Warshi	Indian	India	Student, Department of CSE(AI-ML), School of Engineering, Brainware University, 398, Ramkrishnapur Road, Barasat, Pin-700125
4. Rahul Dutta	Indian	India	Student, Department of CSE(AI-ML), School of Engineering, Brainware University, 398, Ramkrishnapur Road, Barasat, Pin-700125
5. Dibyendu Deb	Indian	India	Student, Department of CSE(AI-ML), School of Engineering, Brainware University, 398, Ramkrishnapur Road, Barasat, Pin-700125
6. Md.Usman Ansari	Indian	India	Student, Department of CSE(AI-ML), School of Engineering, Brainware University, 398, Ramkrishnapur Road, Barasat, Pin-700125

5. TITLE OF THE INVENTION

"A WEARABLE SENSING DEVICE FOR THE BLIND AND DEAF INDIVIDUALS"

6. AUTHORISED REGISTERED PATENT AGENT(S)	IN/PA No.	
	Name	
	Mobile No.	
7. ADDRESS FOR SERVICE OF APPLICANT IN INDIA	Name	Mahua Pal
	Postal Address	Brainware University, 398, Ramkrishnapur Rd, Near Jagadighata Market, Barasat, Kolkata, West Bengal 700125
	Telephone No.	
	Mobile No.	9831960033
	Fax No.	
	E-mail ID	registrar@brainwareuniversity.ac.in

~~**8. IN CASE OF APPLICATION CLAIMING PRIORITY OF APPLICATION FILED IN CONVENTION COUNTRY, PARTICULARS OF CONVENTION APPLICATION**~~

~~Country~~	~~Application Number~~	~~Filing date~~	~~Name of the applicant~~	~~Title of the invention~~	~~IPC (as classified in the convention country)~~

~~**9. IN CASE OF PCT NATIONAL PHASE APPLICATION, PARTICULARS OF INTERNATIONAL APPLICATION FILED UNDER PATENT CO-OPERATION TREATY**~~

~~**(PCT)**~~

~~International application number~~	~~International filing date~~

~~**10. IN CASE OF DIVISIONAL APPLICATION FILED UNDER SECTION 16, PARTICULARS OF ORIGINAL (FIRST) APPLICATION**~~

~~Original (first) application No.~~	~~Date of filing of original (first) application~~

~~**11. IN CASE OF PATENT OF ADDITION FILED UNDER SECTION 54, PARTICULARS OF MAIN APPLICATION OR PATENT**~~

~~Main application/patent No.~~	~~Date of filing of main application~~

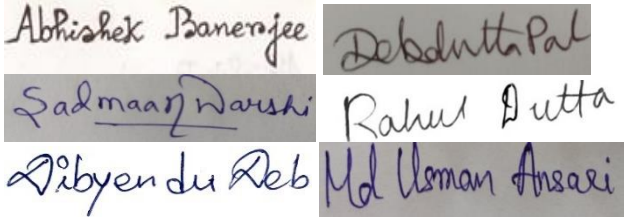
12. DECLARATIONS

i) Declaration by the inventor(s)

(**In case the applicant is an assignee**: the inventor(s) may sign herein below or the applicant may upload the assignment or enclose the assignment with this application for patent or send the assignment by post/electronic transmission duly authenticated within the prescribed period).

I/We, the above named inventor(s) is/are the true & first inventor(s) for this Invention and declare that the applicant(s) herein is/are my/our assignee or legal representative.

(a) Date 23/03/2023

(b) Name	(c) Signature
1. Mr. Abhishek Banerjee 2. Dr. Debdutta Paul 3. Sadmaan Warshi 4. Rahul Dutta 5. Dibyendu Deb 6. Md.Usman Ansari	

~~**(ii) Declaration by the applicant(s) in the convention country**~~

~~**(In case the applicant in India is different than the applicant in the convention country:** the applicant in the convention country may sign herein below or applicant in India may upload the assignment from the applicant in the convention country or enclose the said assignment with this application for patent or send the assignment by post/electronic transmission duly authenticated within the prescribed period)~~

~~I/We, the applicant(s) in the convention country declare that the applicant(s) herein is/are my/our assignee or legal representative.~~

~~(a) Date~~

~~(b) Signature(s)~~

(c) ~~Name(s) of the signatory~~

(iii) Declaration by the applicant(s)

I/We the applicant(s) hereby declare(s) that: -

- ☐ ~~I am/~~ We are in possession of the above-mentioned invention.
- ☐ The ~~provisional~~/complete specification relating to the invention is filed with this application.
- ☐ ~~The invention as disclosed in the specification uses the biological material from India and the necessary permission from the competent authority shall be submitted by me/us before the grant of patent to me/us.~~
- ☐ There is no lawful ground of objection(s) to the grant of the Patent to me/us.
- ☐ ~~I am~~/we are the true & first inventor(s).
- ☐ ~~I am/we are the assignee or legal representative of true & first inventor(s).~~
- ☐ ~~The application or each of the applications, particulars of which are given in Paragraph-8, was the first application in convention country/countries in respect of my/our invention(s).~~
- ☐ ~~I/We claim the priority from the above mentioned application(s) filed in convention country/countries and state that no application for protection in respect of the invention had been made in a convention country before that date by me/us or by any person from which I/We derive the title.~~
- ☐ ~~My/our application in India is based on international application under Patent Cooperation Treaty (PCT) as mentioned in Paragraph-9.~~
- ☐ ~~The application is divided out of my /our application particulars of which is given inParagraph-10 and pray that this application may be treated as deemed to have been filed on DD/MM/YYYY under section 16 of the Act.~~
- ☐ ~~The said invention is an improvement in or modification of the invention particulars of which are given in Paragraph-11.~~

13. FOLLOWING ARE THE ATTACHMENTS WITH THE APPLICATION

(a) Form 2

Item	Details	Fee	Remarks
Complete/ ~~Provisional~~ specification) #	No. of pages: 15		
No. of Claim(s)	No. of claims: 09 No. of pages: 03		
Abstract	No. of pages: 01		
No. of Drawing(s)	No. of drawings: 03 No. of pages: 02		

In case of a complete specification, if the applicant desires to adopt the drawings filed with his provisional specification as the drawings or part of the drawings for the complete specification under rule 13(4), the number of such pages filed with the provisional specification are required to be mentioned here.

(b) Complete specification (in conformation with the international application)/as amended before the International Preliminary Examination Authority (IPEA), as applicable (2 copies).

(c) Sequence listing in electronic form

(d) Drawings (in conformation with the international application)/as amended before the International Preliminary Examination Authority (IPEA), as applicable (2 copies).

(e) Priority document(s) or a request to retrieve the priority document(s) from DAS (Digital Access Service) if the applicant had already requested the office of first filing to make the priority document(s) available to DAS.

(f) Translation of priority document/Specification/International Search Report/International Preliminary Report on Patentability.

(g) Statement and Undertaking on Form 3

(h) Declaration of Inventorship on Form 5

(i)Power of Authority

(j)**Total fee ₹…….in Cash/ Banker's Cheque /Bank Draft bearing No..... Date on ……. Bank.**

I/We hereby declare that to the best of my/our knowledge, information and belief the fact and matters slated herein are correct and I/We request that a patent may be granted to me/us for the said invention.

Dated this 23rd day of March 2023

Registrar
Brainware University
Barasat, Kolkata- 700125

Signature:

Name: **Mahua Pal**

Applicant: Brainware University, Kolkata

To,
The Controller of Patents
The Patent Office, at Kolkata

Note: -

* Repeat boxes in case of more than one entry.

* To be signed by the applicant(s) or by authorized registered patent agent otherwise where mentioned.
* Tick ()/cross (x) whichever is applicable/not applicable in declaration in paragraph-12.
* Name of the inventor and applicant should be given in full, family name in the beginning.
* Strike out the portion which is/are not applicable.
* For fee: See First Schedule";

FORM 2

THE PATENTS ACT, 1970

(39 of 1970)

&

The Patent Rules, 2003

COMPLETE SPECIFICATION

(See section 10 and rule 13)

TITLE OF THE INVENTION

"A WEARABLE SENSING DEVICE FOR THE BLIND AND DEAF INDIVIDUALS"

Applicant:

Brainware University, Kolkata,

398, Ramkrishnapur Rd, Near Jagadighata Market, Barasat, Kolkata, West Bengal 700125.

The following specification particularly describes the nature of the invention and the manner in which it is performed:

FIELD OF THE INVENTION

[001] The present invention relates to assistive devices for the visually and hearing-impaired individuals. More specifically, the present invention relates to a wearable extra sense device that helps the blind and deaf individuals to navigate their surroundings with confidence and speed by detecting nearby objects and obstacles using ultrasonic waves.

BACKGROUND OF THE INVENTION

[002] The following description provides the information that may be useful in understanding the present invention. It is not an admission that any of the information provided herein is prior art or relevant to the presently claimed invention, or that any publication specifically or implicitly referenced is prior art.

[003] Blind and deaf individuals face numerous challenges in their daily lives, particularly when it comes to navigating their surroundings. Traditional mobility aids such as canes, guide dogs, and cochlear implants can be helpful, but they do not provide a comprehensive solution to the problems faced by individuals with sensory disabilities. Furthermore, traditional mobility aids can be cumbersome, expensive, and may not be suitable for all individuals.

[004] In recent years, there has been growing interest in the development of wearable technology for individuals with disabilities. These devices are designed to augment the senses, enhance communication, and improve overall quality of life. One promising area of research is the use of ultrasonic waves to detect nearby objects and obstacles. Ultrasonic waves are sound waves with frequencies higher than the upper audible limit of human hearing. They are commonly used in medical imaging, industrial testing, and a range

of other applications. Ultrasonic sensors have been used for obstacle detection in robotics for many years, and they have recently been adapted for use in wearable devices. Several wearable ultrasonic devices have been developed for the blind and visually impaired, including the Ultra cane and the Sonic Guide.

[005] The extra sense for blind and deaf is a revolutionary product that aims to provide a unique solution to the problems faced by visually and hearing-impaired individuals. The device is designed to enable these individuals to navigate their surroundings with confidence and speed by detecting nearby objects and obstacles using ultrasonic waves. The need for such a product is immense, as visually and hearing-impaired individuals often find themselves dependent on others for assistance. The Extra Sense for Blind and Deaf project aims to provide these individuals with an extra sense that will allow them to move around freely and independently, without the need for constant assistance.

[006] The extra sense for blind and deaf device takes the form of a wearable pair of spectacles that emit ultrasonic waves. These waves bounce off nearby objects and obstacles and are detected by the device. The user is then alerted to the presence of these obstacles through a buzz sound or vibrations, allowing them to navigate around them safely and with ease.

[007] The device is extremely valuable to persons who are vision impaired and deaf, as well as those who frequently depend on others. For those who are visually impaired, this product will be an alternative to the more expensive and cumbersome guide dogs. Additionally, it will be more affordable, reliable, and easy to use than many other instruments currently available in the market.

[008] Accordingly, on the basis of aforesaid facts, there remains a need in the prior art to provide the wearable device that helps the blind and deaf individuals to navigate their surroundings with confidence and speed by detecting nearby objects and obstacles using ultrasonic waves. Therefore, it would be useful and desirable to have a system, method, apparatus and interface to meet the above-mentioned needs.

SUMMARY OF THE PRESENT INVENTION

[009] The extra sense for blind and deaf person, the present invention has developed a wearable device that helps visually and hearing-impaired individuals navigate their surroundings with confidence and speed by detecting nearby objects and obstacles using ultrasonic waves. The device, which is designed to be worn as a spectacle, emits ultrasonic waves and alerts the wearer through sound and vibration when obstacles are detected.

[010] The device has several advantages over existing products in the market, including affordability, reliability, ease of use and operation, and wide range coverage. The device's working principle involves several components such as an Arduino Nano, ultrasonic sensor, vibrating motor, buzzer module, beard board, spectacle glass, red-colored LED, switches, connecting wire, male and female header pins, and a 3.3-volt. The unique features of the invention include the ability to detect obstacles in the front of the person, vibration alerts for deaf individuals, and wide range coverage. Overall, the Extra Sense for Blind and Deaf project is a significant innovation that helps individuals with visual and hearing impairments to navigate their surroundings with confidence

and independence, making it a valuable tool for the assistive technology industry.

[011] In this respect, before explaining at least one object of the invention in detail, it is to be understood that the invention is not limited in its application to the details of set of rules and to the arrangements of the various models set forth in the following description or illustrated in the drawings. The invention is capable of other objects and of being practiced and carried out in various ways, according to the need of that industry. Also, it is to be understood that the phraseology and terminology employed herein are for the purpose of description and should not be regarded as limiting.

[012] These together with other objects of the invention, along with the various features of novelty which characterize the invention, are pointed out with particularity in the disclosure. For a better understanding of the invention, its operating advantages and the specific objects attained by its uses, reference should be made to the accompanying drawings and descriptive matter in which there are illustrated preferred embodiments of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[013] The invention will be better understood and objects other than those set forth above will become apparent when consideration is given to the following detailed description thereof. Such description makes reference to the annexed drawings wherein:

[014] FIG. 1, illustrates a schematic diagram of working principle of the device, in accordance with an embodiment of the present invention.

[015] FIG. 2, illustrates a schematic diagram of circuit diagram of the device, in accordance with an embodiment of the present invention.

[016] FIG. 3, illustrates a schematic diagram of design of the device, in accordance with an embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[017] While the present invention is described herein by way of example using embodiments and illustrative drawings, those skilled in the art will recognize that the invention is not limited to the embodiments of drawing or drawings described and are not intended to represent the scale of the various components. Further, some components that may form a part of the invention may not be illustrated in certain figures, for ease of illustration, and such omissions do not limit the embodiments outlined in any way. It should be understood that the drawings and detailed description thereto are not intended to limit the invention to the particular form disclosed, but on the contrary, the invention is to cover all modifications, equivalents, and alternatives falling within the scope of the present invention as defined by the appended claims. As used throughout this description, the word "may" is used in a permissive sense (i.e. meaning having the potential to), rather than the mandatory sense, (i.e. meaning must). Further, the words "a" or "an" mean "at least one" and the word “plurality” means “one or more” unless otherwise mentioned. Furthermore, the terminology and phraseology used herein is solely used for descriptive purposes and should not be construed as limiting in scope. Language such as "including," "comprising," "having," "containing," or "involving," and variations thereof, is intended to be broad and encompass the subject matter listed thereafter, equivalents, and additional subject matter not recited, and is not intended to exclude other additives, components, integers or steps. Likewise, the term "comprising" is considered synonymous with the

terms "including" or "containing" for applicable legal purposes. Any discussion of documents, acts, materials, devices, articles and the like is included in the specification solely for the purpose of providing a context for the present invention. It is not suggested or represented that any or all of these matters form part of the prior art base or were common general knowledge in the field relevant to the present invention.

[018] In this disclosure, whenever a composition or an element or a group of elements is preceded with the transitional phrase “comprising”, it is understood that we also contemplate the same composition, element or group of elements with transitional phrases “consisting of”, “consisting”, “selected from the group of consisting of, “including”, or “is” preceding the recitation of the composition, element or group of elements and vice versa.

[019] The present invention is described hereinafter by various embodiments with reference to the accompanying drawings, wherein reference numerals used in the accompanying drawing correspond to the like elements throughout the description. This invention may, however, be embodied in many different forms and should not be construed as limited to the embodiment set forth herein. Rather, the embodiment is provided so that this disclosure will be thorough and complete and will fully convey the scope of the invention to those skilled in the art. In the following detailed description, numeric values and ranges are provided for various aspects of the implementations described. These values and ranges are to be treated as examples only and are not intended to limit the scope of the claims. In addition, a number of materials are identified as suitable for various facets of the implementations. These

materials are to be treated as exemplary and are not intended to limit the scope of the invention.

[020] The present invention discloses a wearable device that helps visually and hearing-impaired individuals to navigate their surroundings with confidence and speed by detecting nearby objects and obstacles using ultrasonic waves. The Extra Sense for Blind and Deaf project is an advancement that allows visually impaired individuals to move around and go from one place to another with speed and certainty, alerted to nearby obstacles with a buzz sound and vibration. This device is a wearable spectacle that emits ultrasonic waves, and when obstacles are detected, the device alerts the wearer through sound and vibration.

[021] The device has several advantages over existing products in the market. It is affordable, reliable, easy to use, and operate. The proposed system offers cheaper and effective obstacle detection with a wide range of coverage. The device is designed to be worn as a spectacle, eliminating the need for blind individuals to carry a white cane or similar gadgets, which is convenient for them. The device can perform quite accurately with very little training, making it an excellent tool for visually and hearing-impaired individuals to navigate their surroundings with confidence and speed.

[022] The device is programmed as that if the obstacles distance is near about 100 cm to 70 cm, then the buzzer will sound in the interval of 5 second and vibration too. And if obstacle is in range of 70 cm to 50 cm, then buzzer and vibration will sound in interval of 4 second. And if distance is near about 50 cm to 20 cm, then the buzzer will buzz with delay of 1.5 second. And if obstacle is very close that is within 5 cm, then the buzzer and vibration will alert them

in a linear manner. With this feature a blind person can easily detect the distance of the obstacles. This device can simply be worn as a spectacle.

[023] The device's working principle involves several components such as an Arduino Nano, ultrasonic sensor, vibrating motor, buzzer module, beard board, spectacle glass, red-coloured LED, switches, connecting wire, male and female header pins, and a 3.3-volt. The ultrasonic sensor measures the distance of a target object by emitting ultrasonic sound waves and converts the reflected sound into an electrical signal. The Arduino then analyses the distance of the obstacles and stores this information, which is sent as an electrical signal to the buzzer and vibration to alert the wearer.

[024] The device has several technical and commercial advantages. The unique features of the invention include the ability to detect obstacles in the front of the person, vibration alerts for deaf individuals, and wide range coverage. The device is designed to help visually, and hearing-impaired individuals navigate their surroundings with confidence and speed, making it a significant contribution to the assistive technology industry. The proposed invention is suitable for both indoor and outdoor use, making it a versatile tool for blind and deaf individuals.

[025] Overall, the Extra Sense for Blind and Deaf project is a significant innovation that helps individuals with visual and hearing impairments to navigate their surroundings with confidence and independence. The proposed invention has several advantages, making it a valuable tool for individuals with visual and hearing impairments, and contributing to the development of assistive technology.

[026] The technical and commercial advantages associated with the unique feature of the present invention is as follows:

-If the object is on the front side of the person the device vibrates and rings to alert the person to the presence of the obstruction.

-The proposed system deals with the cheaper and effective obstacle detection with a wide range of coverage**.**

-They can completely avoid using a white cane or other similar gadgets by using this device. This device will assist the blind in navigating without the use of a stick, which is convenient for them. They can simply wear it as a spectacle, and it will perform quite accurately with very little training.

-In this innovative world there is number of gadgets there for blind and deaf, but they are too much expensive. But our device is cheaper and affordable. Need very little training.

-It can help the blind person along with he/she deaf, this device has vibration sensor that can help the blind with deaf disability too.

-This device has enabled blind people who is deaf to live freely, allowing them to carry out their everyday activities with ease and confidence while maintaining a high level of safety. To supply valuable help and bolster for the daze and outwardly disabled,

-It is a straightforward, cheap, proficient, simple to carry, versatile, simple to handle. This technology can search for and detect obstructions in all directions, regardless of the object's height or depth. If the project is completed properly, the blind will be able to move from one location to another without the assistance of others.

[027] It is to be understood that the above description is intended to be illustrative, and not restrictive. For example, the above-discussed embodiments may be used in combination with each other. Many other embodiments will be apparent to those of skill in the art upon reviewing the above description.

[028] The benefits and advantages which may be provided by the present invention have been described above with regard to specific embodiments. These benefits and advantages, and any elements or limitations that may cause them to occur or to become more pronounced are not to be construed as critical, required, or essential features of any or all of the embodiments.

[029] While the present invention has been described with reference to particular embodiments, it should be understood that the embodiments are illustrative and that the scope of the invention is not limited to these embodiments. Many variations, modifications, additions and improvements to the embodiments described above are possible. It is contemplated that these variations, modifications, additions and improvements fall within the scope of the invention.

We Claim:

1. A wearable device for assisting visually and hearing-impaired individuals to navigate their surroundings with confidence and speed, comprising:

a spectacle frame;

an ultrasonic sensor mounted on the spectacle frame and configured to emit ultrasonic waves to detect nearby objects and obstacles;

an Arduino Nano configured to receive the distance information from the ultrasonic sensor and analyze the distance of the obstacles;

a buzzer module configured to generate sound alerts when obstacles are detected;

a vibrating motor configured to generate vibration alerts for deaf individuals when obstacles are detected;

a beard board for circuit connections;

a red-colored LED configured to indicate when the device is in operation;

switches configured to turn on and off the device and adjust the sensitivity of the ultrasonic sensor;

connecting wires for electrically connecting the various components;

male and female header pins for plugging in and out the various components;

and a 3.3-volt battery for powering the device.

2. The A wearable device for assisting visually and hearing-impaired individuals as claimed in claim **1**, wherein the ultrasonic sensor is configured to detect obstacles in the range of 100 cm to 70 cm, and the buzzer and vibration alerts are generated in an interval of 5 seconds.

3. The A wearable device for assisting visually and hearing-impaired individuals as claimed in claim **1**, wherein the ultrasonic sensor is configured to detect obstacles in the range of 70 cm to 50 cm, and the buzzer and vibration alerts are generated in an interval of 4 seconds.

4. The A wearable device for assisting visually and hearing-impaired individuals as claimed in claim **1**, wherein the ultrasonic sensor is configured to detect obstacles in the range of 50 cm to 20 cm, and the buzzer alerts are generated with a delay of 1.5 seconds.

5. The A wearable device for assisting visually and hearing-impaired individuals as claimed in claim **1**, wherein the ultrasonic sensor is mounted on the spectacle frame in a fixed position facing forward, configured to detect nearby objects and obstacles within a range of 100 cm to 5 cm in front of the user.

6. The A wearable device for assisting visually and hearing-impaired individuals as claimed in claim **1**, wherein the vibrating motor is configured to provide haptic feedback to the user when an obstacle is detected within a predefined range of 100 cm to 20 cm, with increasing intensity as the distance to the obstacle decreases.

7. The A wearable device for assisting visually and hearing-impaired individuals as claimed in claim **1**, wherein the buzzer module is configured to provide auditory feedback to the user when an obstacle is detected within a predefined

range of 100 cm to 20 cm, with varying frequency and interval of sound depending on the distance to the obstacle.

8. The A wearable device for assisting visually and hearing-impaired individuals as claimed in claim **1**, wherein the red-colored LED is configured to provide visual feedback to the user when an obstacle is detected within a predefined range of 100 cm to 20 cm, by flashing at a predefined frequency and duration.

9. The A wearable device for assisting visually and hearing-impaired individuals as claimed in claim **1**, wherein the power source comprises a 3.3-volt battery mounted on the spectacle frame, configured to provide power to the ultrasonic sensor, Arduino Nano, vibrating motor, buzzer module, and red-colored LED for a predetermined amount of time.

Dated this 23rd day of March 2023

Applicant

Brainware University, Kolkata

Registrar
Brainware University
Barasat, Kolkata- 700125

Signature:

Name: Mahua Pal

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ABSTRACT

A WEARABLE SENSING DEVICE FOR THE BLIND AND DEAF INDIVIDUALS

[030] The Extra Sense for Blind and Deaf project has developed a wearable device that helps visually and hearing-impaired individuals navigate their surroundings with confidence and speed by detecting nearby objects and obstacles using ultrasonic waves. The device, which is designed to be worn as a spectacle, emits ultrasonic waves and alerts the wearer through sound and vibration when obstacles are detected. The device has several advantages over existing products in the market, including affordability, reliability, ease of use and operation, and wide range coverage. The device's working principle involves several components such as an Arduino Nano, ultrasonic sensor, vibrating motor, buzzer module, beard board, spectacle glass, red-colored LED, switches, connecting wire, male and female header pins, and a 3.3-volt. The unique features of the invention include the ability to detect obstacles in the front of the person, vibration alerts for deaf individuals, and wide range coverage.

Accompanied Drawing **[FIG. 3]**

Dated this 23rd day of March 2023

Applicant

Brainware University, Kolkata

Registrar
Brainware University
Barasat, Kolkata- 700125

Signature:

Name: Mahua Pal

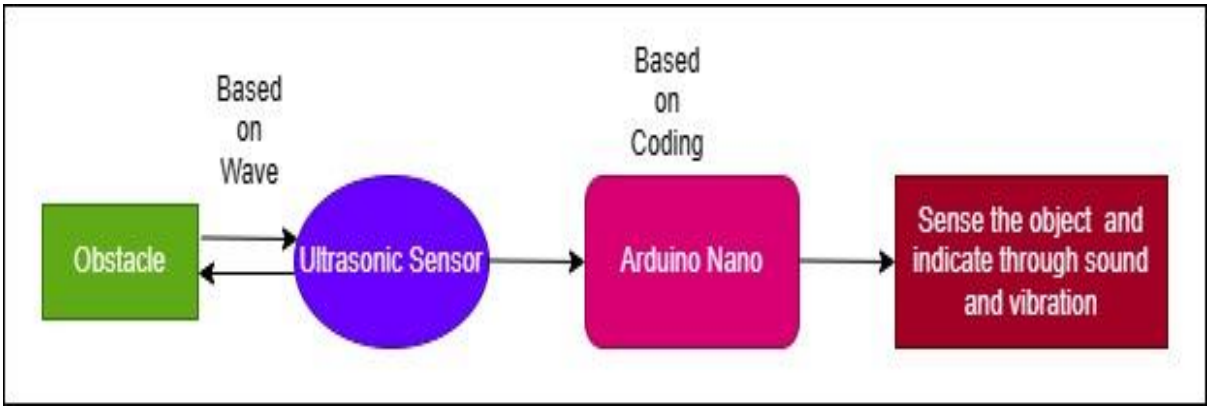

FIG. 1

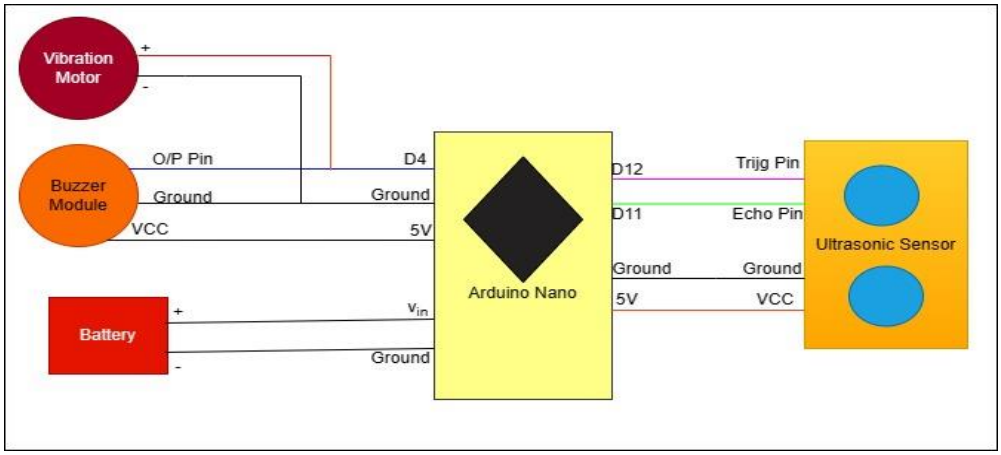

FIG. 2

Registrar
Brainware University
Barasat, Kolkata- 700125

Signature:

Name: Mahua Pal

Applicant: Brainware University, Kolkata

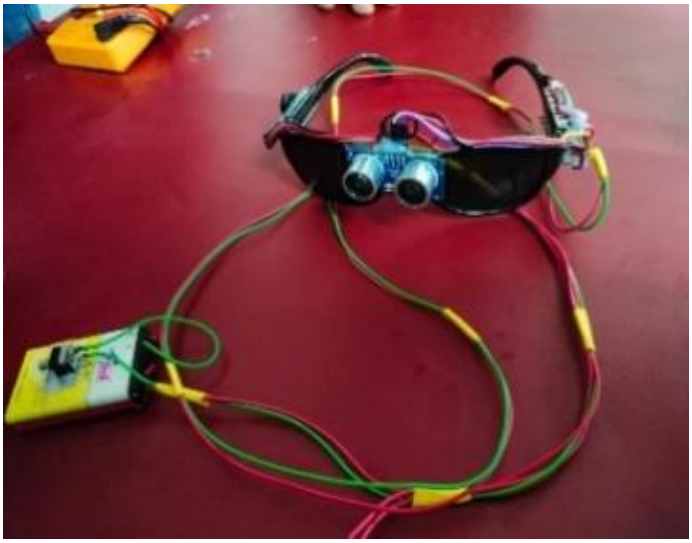

FIG. 3

Dated this 23rd day of March 2023

Registrar
Brainware University
Barasat, Kolkata- 700125

Signature:

Name: Mahua Pal

Applicant: Brainware University, Kolkata

FORM 3

THE PATENTS ACT, 1970
(39 of 1970)
and
THE PATENTS RULES, 2003

STATEMENT AND UNDERTAKING UNDER SECTION 8

(See section 8; Rule 12)

1. Name of the applicant(s).	We, **Brainware University, Kolkata** having office at, 398, Ramkrishnapur Rd, Near Jagadighata Market, Barasat, Kolkata, West Bengal 700125.
2. Name, address and nationality of the joint applicant.	(i) that ~~I~~/We have not made any application for the same/substantially the same invention outside India Or (ii) ~~that I/We who have made this application No… dated alone/jointly with……, made for the same/ substantially same invention, application(s) for patent in the other countries, the particulars of which are given below:~~

Name of the Country	Date of Application	Application No.	Status of the Application	Date of Publication	Date of grant
-	-	-	-	-	-

3. Name and address of the assignee	(iii) that the rights in the application(s) has/have been assigned to …… none …… …… …… that I/We undertake that upto the date of grant of the patent by the Controller, I/We would keep him informed in writing the details regarding corresponding applications for patents filed outside India within six months from the date of filing of such application. **Dated this 23rd day of March 2023**

4. To be signed by the applicant or his authorized registered patent agent.	**Signature:** Registrar Brainware University Barasat, Kolkata- 700125 **Name:** Mahua Pal
5. Name of the natural person who has signed.	Brainware University, Kolkata **Name of the Applicant**
	To The Controller of Patents, The Patent Office, at Kolkata
Note.- Strike out whichever is not applicable;	

FORM- 5

THE PATENTS ACT, 1970

(39 of 1970)

&

The Patents Rules, 2003

DECLARATION AS TO INVENTORSHIP

[See Section 10(6) and Rule 13(6)]

1. NAME OF THE APPLICANT

We, **Brainware University, Kolkata** having office at, 398, Ramkrishnapur Rd, Near Jagadighata Market, Barasat, Kolkata, West Bengal 700125.

hereby declare that the true and first inventor(s) of the invention disclosed in the complete specification filed in pursuance of ~~my~~/ our application numbered _____ dated 23-03-2023 ~~is~~/are

2. INVENTOR(S)

(a) NAME	**(b) NATIONALITY**	**(c) ADDRESS**
1. Mr. Abhishek Banerjee	Indian	Assistant Professor, Department of CSE, School of Engineering, Brainware University, 398, Ramkrishnapur Road, Barasat, Pin-700125
2. Dr. Debdutta Paul	Indian	HOD, Department of CSE, School of Engineering, Brainware University, 398, Ramkrishnapur Road, Barasat, Pin-700125
3. Sadmaan Warshi	Indian	Student, Department of CSE(AI-ML), School of Engineering, Brainware University, 398, Ramkrishnapur Road, Barasat, Pin-700125
4. Rahul Dutta	Indian	Student, Department of CSE(AI-ML), School of Engineering, Brainware University, 398, Ramkrishnapur Road, Barasat, Pin-700125
5. Dibyendu Deb	Indian	Student, Department of CSE(AI-ML), School of Engineering, Brainware University, 398, Ramkrishnapur Road, Barasat, Pin-700125
6. Md.Usman Ansari	Indian	Student, Department of CSE(AI-ML), School of Engineering, Brainware University, 398,

		Ramkrishnapur Road, Barasat, Pin-700125

~~3. DECLARATION TO BE GIVEN WHEN THE APPLICATION IN INDIA IS FILED BY THE APPLICANT(S) IN THE CONVENTION COUNTRY: -~~

N.A.

~~We the applicant(s) in the convention country hereby declare that our right to apply for a patent in India is by way of assignment from the true and first inventor(s).~~

Dated this 23rd day of March 2023

Applicant

Brainware University, Kolkata

Registrar
Brainware University
Barasat, Kolkata- 700125

Signature:

Name: Mahua Pal

To,
The Controller of Patents
The Patent Office, Kolkata

FORM 9

THE PATENT ACT, 1970
(39 of 1970)
&
THE PATENTS RULES, 2003

REQUEST FOR PUBLICATION

[See section 11A (2) rule 24A]

I/We **Brainware University, Kolkata** hereby request for early publication of my/our [Patent Application No.] TEMP/E-1/24088/2023-KOL

Dated **23/03/2023 00:00:00** under section 11A(2) of the Act.

Dated this(Final Payment Date):----------
Signature
Name of the signatory

To,
The Controller of Patents,
The Patent Office,
At Kolkata

This form is electronically generated.