NEW HORIZON COLLEGE OF ENGINEERING

Autonomous College Permanently Affiliated to VTU, Approved by AICTE & UGC
Accredited by NAAC with 'A' Grade.

MINI PROJECT REPORT ON

"THIRD EYE FOR BLIND"

SUBMITTED BY:

Amol Patil (1NH18EC702)

Under the guidance of

Ms. Tessy Tomy

Senior Assistant Professor, Dept. of ECE, NHCE, Bengaluru.

NEW HORIZON COLLEGE OF ENGINEERING DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

CERTIFICATE

Certified that the mini project work entitled "**THIRD EYE FOR BLIND**" carried out by

Amol Patil (1NH18EC702)bonafide students of Electronics and Communication Department, New Horizon College of Engineering, Bangalore. The mini project report has been approved as it satisfies the academic requirements in respect of mini project work prescribed for the said degree.

Project Guide	HOD ECE
Ms. TESSY TOMY Assistant professor Department of E.C.E	Dr. Sanjeev Sharma B.Tech,M.Tech,Ph.D
----------	----------

External Viva

Name of Examiner	Signature with Date
1.	
2.	

ACKNOWLEDGEMENT:

The satisfaction that accompanies the successful completion of any task would be, but impossible without the mention of the people who made it possible, whose constant guidance and encouragement helped us succeed.

We thank **Dr. Mohan Manghnani**, Chairman of **New Horizon Educational Institution**, for providing necessary infrastructure and creating good environment.

We also record here the constant encouragement and facilities extended to us by **Dr. Manjunatha**, Principal, NHCE and **Dr. Sanjeev Sharma**, head of the department of Electronics and Communication Engineering. We extend sincere gratitude to them.

We sincerely acknowledge the encouragement, timely help and guidance to us by our beloved guide **Ms. TESSY TOMY** to complete the project within stipulated time successfully.

Finally, a note of thanks to the teaching and non-teaching staff of electronics and communication department for their co-operation extended to us, who helped us directly or indirectly in this successful completion of mini project.

Amol Patil (1NH18EC702)

TABLE OF CONTENTS:

LIST OF FIGURES

ABSTRACT

Third eye for the visually impaired is a development with the assistance of the multidiscipline subjects like software engineering, hardware designing and wellbeing science which causes the visually impaired individuals to explore with speed and certainty by identifying the close by obstructions utilizing the assistance of ultrasonic waves and advise them with a signal sound or vibration. As per WHO 39 million individuals are assessed as blinds around the world. They are enduring a ton of difficulties in their everyday life. The influenced ones have been utilizing the custom white stick for a long time which despite the fact that being viable, actually has a great deal of disservices. This will be a wearable innovation for the blinds. One of the fundamental quick of this gadget is that it will be reasonable. The Arduino Pro Mini 328-15/16 MHz board is worn like a gadget. This will be outfitted with ultrasonic sensors, comprising of module. Utilizing the sensor, outwardly debilitated can distinguish the items around them and can travel without any problem. At the point when the sensor recognizes any item, it will advise the client by signal or vibration. Subsequently, this is a robotized gadget. Accordingly, this gadget will be of an incredible use for the blinds and help them travel better places.

Keywords:

- Ultrasonic waves
- Arduino
- Sensors
- Robotized gadget
- Connecting

CHAPTER 01 INTRODUCTION

With the improvement of the expectations for everyday comforts of the individuals, we have become so materialistic that we have failed to remember how the truly incapacitated individuals carry on with an intense life. They go through thorough, aloof and impassive conduct towards them for being genuinely crippled. They become subject to others in a manner for their everyday schedule errands. Visually impaired constantly people consistently rely upon others for their motion. Eye are prime feeling of organ in seeing the external climate; brokenness of such prime receptor seriously impacts the information seeing capacity of the external climate. Subsequently, heading over to places in such climate is a major test in light of the fact that the visually impaired individuals can't rely upon their own eyes and in this way face numerous troubles. The target of this venture The Third Eye for the Blind is to plan an item which is a lot of helpful to those individuals who are outwardly debilitated and the individuals who regularly need to depend on others. Third eye for Blind undertaking is an advancement which assists the outwardly impeded individuals with moving around and move between different places with speed and certainty by realizing the close by deterrents utilizing the assistance of the wearable band which delivers the ultrasonic waves which inform them with buzz sound or vibrations. It permits the client the individuals who are outwardly hindered to walk uninhibitedly by identifying the obstructions. They just need to wear this gadget as a band or fabric on their body. As per WHO or the World Health Organization, 39 million individuals are assessed as blinds around the world. They are enduring a ton of difficulty in their day by day life. The truly debilitated ones have been utilizing the customary way that is the white stick for a long time which in spite of the fact that being successful, actually has a ton of drawbacks and impediments. Another way is, having a pet

creature, for example, a canine, yet it is truly costly. Along these lines, the point of the undertaking Third eye

for the Blind is to build up a modest, moderate and more productive approach to assist the visually impaired individuals with exploring with more prominent solace, speed and certainty. This is the wearable innovation for the blinds which helps settle all the issues of the current advancements. Presently there are such countless advancements, things and savvy gadgets for the outwardly debilitated individuals for the route, however the greater part of them have certain issues for the visually impaired individuals and the significant disadvantages are that those things need a ton of preparing and endeavors to utilize. One of the primary point of this development is, it is moderate for everybody, the absolute expense being under $25 or ~1500 INR. There are no such gadgets accessible in the market that can be worn like a material and having a particularly cost and effortlessness. With the utilization of this extemporized gadget in a huge scope, with upgrades in the model, it will definitely profit the network of the outwardly disabled or the visually impaired individuals. The strolling stick is a basic and absolutely mechanical gadget devoted to distinguish the static or the steady snags on the ground, lopsided surfaces, openings and steps by means of straightforward material power criticism. This gadget is light, compact yet restricted to its size and it isn't utilized for dynamic deterrent recognition. These gadgets work like the radar and the arrangement of the gadget utilizes the ultrasonic waves fascicle to distinguish the stature, heading and the speed of the items. The distance between the individual and the hindrance is estimated when of the wave travel. Be that as it may, all the current frameworks educate the visually impaired the presence regarding the article at a particular distance before or close to him. These subtleties help the client or the visually impaired individuals in recognizing the snags and consequently change the way and walk as needs be. Data about the articles and their position in the method of the strolling like a hindrance and their qualities can

make extra information to upgrade the space indication and memory of the visually impaired or the outwardly weakened individuals.

CHAPTER 02
LITERATURE SURVEY

Throughout the most recent couple of years or we can say in the course of the most recent many years, research has been directed for new gadgets and advancements to plan a decent and solid and productive framework for daze or outwardly hindered individuals to recognize the snags and caution or alarm them at peril places or the deterrents. There are a few frameworks which has a few constraints and clampdown. Digging tool et al. in built up a Navbelt, an impediment shirking wearable convenient PC which is just for indoor route. Navbelt was furnished with two modes, in the first the framework data was meant sound in various sounds. One sound for nothing for movement heading and other for hindered, it was hard for the individual to separate the sounds. Other issue was the framework would not have the foggiest idea about the client transitory position. D. Yuan et al. in have examined about the virtual white stick detecting gadget dependent on dynamic triangulation that can gauge distances at a pace of 15 estimations/second. A visually impaired individual can utilize this gadget for detecting the climate, pointing it as though it was a blaze light. Close to estimating distances, this gadget can distinguish surface discontinuities, for example, the foot of a divider, a stage, or a drop-off. This is acquired by infringement down the reach information gathered as the client swings the gadget around, following planar fixes and discovering discontinuities. Benjamin et al. in present a laser stick with three photograph diodes and three laser diodes work as beneficiary making an optical triangulation. The laser stick for the most part distinguishes the deterrent in three indicated bearings. One is 45º to the ground for overhanging snags, the subsequent

one is corresponding to the ground and third one is for sharp profundity. The laser stick has no information or innovation or we can say framework for deciding the area and the situation of the snag, rather it is much the same as a hit and preliminary technique. J. Na proposed an intuitive guide framework for indoor situating of this,

which can't distinguish the snags and obstacles.The framework isn't appropriate for the outside exercises. Sabarish.S in have depicted the advancement of a route help to help daze and outwardly debilitated individuals to explore effectively, securely and to identify any obstructions. The framework depends on a microcontroller with manufactured discourse yield. Furthermore, the gadget comprises of two vibrators, two ultrasonic sensors which is mounted on the client's shoulders or some other body part and another coordinated into the stick.

M.A Ungar S. has proposed strategies for the outwardly impeded individuals for the metropolitan urban communities. In any case, they didn't consider about the individuals who can't manage the cost of exorbitant hardware and gadgets. This constraint is overwhelmed by the gadget third eye for the visually impaired. Ms. Pooja Sharma has talked about that the impediments can be identified, however it has numerous constraints on the points and the distance. On opposite, this venture will have a wide plot for the location where the sensors reach will be wide. In this day and age of developments, there are numerous advancements for the outwardly debilitated individuals like the white stick with the stick with a red tip for aiding the developments of the visually impaired individuals. There are a wide range of sorts of sticks utilized in this day and age with developing advances, for example, the white stick, the shrewd stick, and the laser stick. The expense of the prepared canines is likewise extremely high and isn't reasonable alternative. A review found that the far off direction framework is hard to convey and subsequently the wearable band will be more streamlined rendition. Similarly Guide Cane, this creation likewise has a control button on the handle, and the catch has four distinct headings. This innovation of the Third eye for dazzle has similar deficiencies or impediments as the Guide Cane where there will be a trouble to save space for the stick or to put the keen stick like the other. Other than that, cost is additionally an issue in this venture as it utilizes ultrasonic sensors and numerous servo engines. On the off chance that the expense is high, clients will be unable to bear for it on the grounds that the normal pay of the outwardly weakened individuals is typically less. Savvy Cane has been planned by

understudies from Central Michigan University where this creation utilizes Radio Frequency Identification (RFID). RFID is utilized to identify items or deterrents before the client and distinguishes the RFID label that has been set in a few areas to explore the clients. This development is much the same as a typical stick however is furnished with a pack, which the client to wear. The pack gives electrical capacity to the creation and illuminates the client through speakers inside the sack. For clients who can't hear, there are exceptional gloves that will vibrate at each finger, in which various vibrations in each finger have various implications. Notwithstanding, this innovation has a few weaknesses and is just appropriate for little regions. This is on the grounds that it just distinguishes the territory with RFID label in any case this development just fills in as a normal visually impaired stick.

Title of the paper	Author & Year of Publication	Outcome	Limitation
Smart system for blind	M. Narendran 1 January 2018	It sends the signal for blind people	High expense, High power dissipation.
Navigation tool for visually challenged using micro controller	Sabarish S . 2013	It sends the location of blind people using GPS	It has less accuracy
An ultrasound sensor based body area network for guiding blind people	Hugo Fernandesc , Joao Barroso 2015	It sends the location of blind people using Using RFID	High power dissipation

Table 2.1 Literature survey list

CHAPTER 03
EXISTING SYSTEM

3.1 Problem of the Existing Systems:

- **White cane:**

May easily crack.The stick may get stuck at pavement cracks of different objects.

- **Petdog:**

Huge cost. (~$42,000 / 280000Rs)

- **Common Disadvantages (Including the 'vision' the smart device):** Can't be conveyed effectively, needs a ton of preparing to utilize… The highlights of Third eye for blinds: By wearing this gadget they can completely dodge the utilization of white stick and such different gadgets. This gadget will assist the visually impaired with exploring without holding a stick which is somewhat irritating for them. They can basically wear it as a band or fabric and it can work precisely and they just need a next to no preparation to us

Fig.3.1 Existing systems

CHAPTER 04

4.1 PROPOSED SYSTEM

This device depends on an exceptional wearable gadget dependent on the Arduino board which can be worn like a material for blinds or a band. This gadget is furnished with five ultrasonic sensors, comprising five modules which are associated with the various pieces of the body. Among them, two for both the shoulders, another two for both the knees, and one for the hand. It's the decision of the outwardly weakened individuals, they can either utilize one band or put it anyplace on their body any place they are agreeable. With the utilization of these five ultrasonic sensors in the gadget and by wearing it on the body, the visually impaired can identify the articles in a fivedimensional view around them and can undoubtedly travel anyplace by distinguishing the snags. At the point when the ultrasonic sensor recognizes hindrance, the gadget will advise the client through vibrations and sound blares. The force of vibrations and the pace of signaling increments with decline in distance and this is a completely robotized gadget. The highlights of the Third Eye for Blind will help the outwardly debilitated individuals from numerous points of view. By wearing this gadget, they can completely stay away from the utilization of the white stick and such different gadgets. This gadget will assist the visually impaired with exploring without holding a stick which is somewhat irritating for them. They can wear the gadget as a band or like a fabric and it can work precisely and they just need a next to no preparation to utilize it as it is very basic, proficient and simple to work and wear.

4.2 BLOCK DIAGRAM

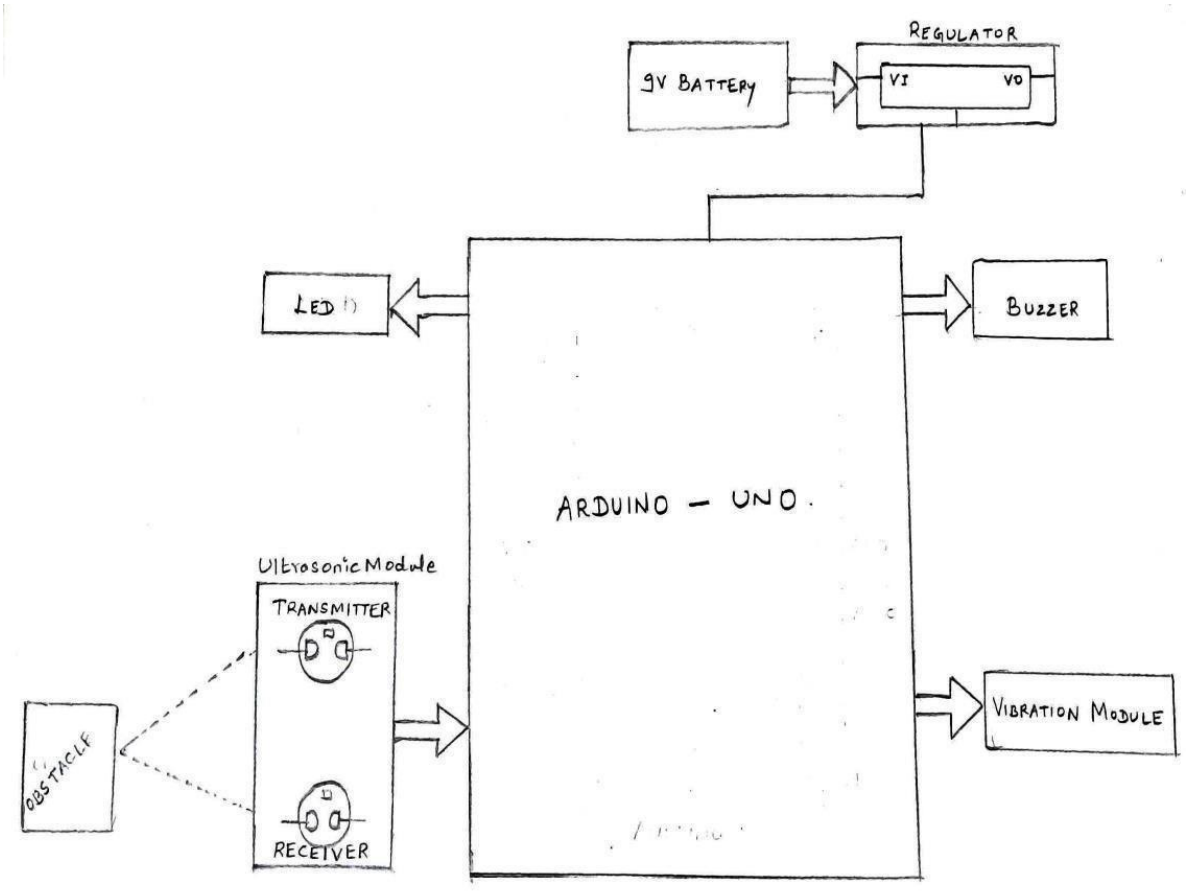

Fig:4.1.Block diagram

This system consists the equipment like Arduino mini pro, ultrasonic sensor, prefer board, vibrating motor, buzzers for detecting the obstacles and letting the user know about the obstacle, Red LEDs, Switches, Jumper cable, power bank, Male and female header pins, 3.3-volt old mobile battery which is unused or discarded, some elastic and stickers to make the device wearable as a band for wearing for the users. The wiring of the device is done in a following manner. The Ground of LED, buzzer and vibration are connected to GND of the Arduino. The +ve of the LED and the middle limb of switch is connected to the Arduino pin 5. The +ve of the Buzzer is strengthened to the first leg of the switch and the

+ve of the Vibration motor is wired to the third leg of the switch. The Ultrasonic sensor are wired therefore. The Ultrasonic sensor pin Vcc is associated to the Arduino pin VCC, Ultrasonic sensor pin GND is connected to the Arduino pin GND, Ultrasonic sensor pin Trig is attached to the Arduino pin 12, Ultrasonic sensor pin is connected

to the Arduino PIN 12. The switch used here is for choosing the mode. (Buzzer or vibration mode.) We first cut the prefer board in 5x3 cm

dimension and solder the female headers for the Arduino to the board. Then soldering of the buzzer is carried out. Then using the glue connector the vibrating motor and solder the wires to it. Then connection of the LED is done. Then connect the switch. Connect the header pins for ultrasonic sensors and to the battery input. Then solder all the belongings and connect the Arduino and ultrasonic sensor to the board. Also attach the elastic band to all the modules. For construction of the module for the hand, connect the ultrasonic sensor to the board by using 4 jumper cables. Then attach a 3.7-volt mobile battery to this module. Then connect the elastic band. In the last after all the connections are done to the Arduino board, upload the code to each Arduino board and power the 4 other modules using a power bank.

The US sensor is a transducer, and is used in pair as trans receivers. The transmitter releases the US waves and if obstacles are present in the path, the US waves hits the obstacles and gets reflected back, the reflected wave is received by the receiver. The US sensor is a mixture of one transmitter and receiver. The time interval between sending and receiving of the US signal is calculated, this time interval is used to calculate the distance between sensor and the obstacle. The equation for the distance calculation between the sensor and the object is as follows:

$$D = (HPTW * SV)/2$$

Where, D = Distance in cm.
HPTW = High time of pulse width.
SV = Sound velocity in cm/s.

The sensors which are placed in waist belt are in such a method that the Ultrasonic pulses of sensors must not be overlay one over the other. Sensors has a field of view (coverage) of about 60 degrees for 4 feet distance, as the distance from the sensor increases, the reporting angle decreases. Thus, the objective is to cover a wide angle to detect the obstacles with the aid of the ultrasonic sensors to help the blind and make it easy for them to move around easily starved of any hassle. Hence, the distance calculation is designed and the sensor detects and the further process of the buzz

sound to the user is carried out of detection Thus, this way Third Eye for Blind will be designed for the visually impaired people and will kind it very easy and convenient as it will be a wearable device and thus will support the user in travelling and detecting the obstacles while walking very easily.

4.3 CIRCUIT DIAGRAM

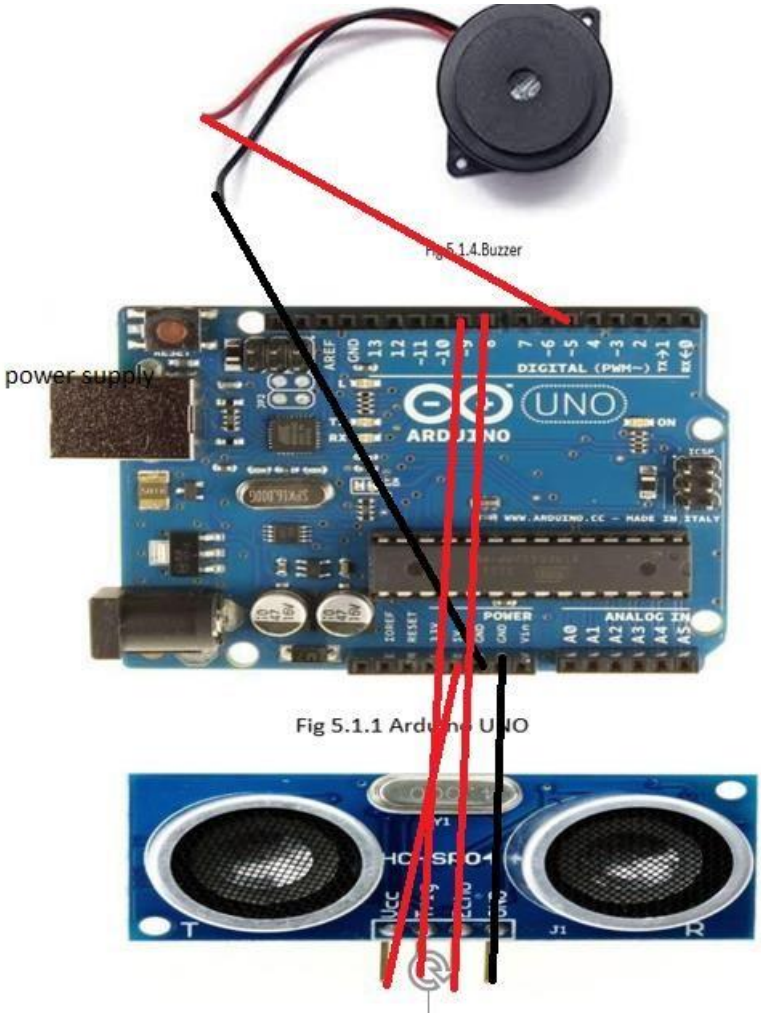

Fig 5.1.1 Arduino UNO

Fig.4.3 Circuit Diagram

4.4 MODEL DEVICE:

Fig 4.2 Model Device

CHAPTER 05

HARDWARE AND SOFTWARE SPECIFICATIONS

5.1 HARDWARE SPECIFICATION

LIST OF COMPONENTS:

- Arduino UNO
- Ultrasonic Sensor
- Working of ultrasonic sensor
- Bread Board
- Buzzer
- Buzzer Pin Configuration
- Buzzer Features and Specifications
- Equivalents for Passive Buzzer
- How to use a Buzzer
- Applications of Buzzer

- Jumper Wires
- Power Bank

5.2 SOFTWARE SPECIFICATION

5.1 .1 .Arduino UNO:

Fig 5.1.1 Arduino UNO

An Arduino is an open-source microcontroller advancement board. In plain English, you can utilize the Arduino to understand sensors and control things like engines and lights. This permits you to transfer projects to this board which would then be able to communicate with things in reality. With this, you can make gadgets which react constantly to the world on the loose.

Throughout the long-term Arduino has been the cerebrum of thousands of activities, from ordinary items to complex logical instruments. An overall network of creators - understudies, specialists, craftsmen, developers, and experts - has assembled around this open-source stage, their commitments have amounted to an inconceivable measure of Accessible information that can be of extraordinary assistance to fledglings and specialists the same.

Arduino was conceived at the Ivrea Interaction Design Institute as a simple instrument for quick prototyping, focused on understudies without a foundation in gadgets and programming. When it arrived at a more extensive network, the Arduino board began changing to adjust to new requirements and difficulties, separating its proposal from straightforward 8-cycle sheets to items for IoT applications, wearable, 3D printing, and implanted conditions. All Arduino sheets are totally open-source, enabling clients to fabricate them autonomously and ultimately adjust them to their specific requirements. The product as well, is open-source, and it is developing through the commitments of clients around the world.

Arduino board plans utilize an assortment of microchips and regulators. The sheets are outfitted with sets of advanced and simple info/yield (I/O) sticks that might be interfaced to different extension sheets ('shields') or breadboards (for prototyping) and different circuits. The sheets highlight sequential correspondences interfaces, including Universal Serial Bus (USB) on certain models, which are additionally utilized for stacking programs from PCs. The microcontrollers can be customized utilizing the C and C++ programming dialects, utilizing a standard API which is otherwise called the "Arduino language"

Arduino Uno

The record well-known rendition of Arduino is the Arduino Uno. This board is the thing that a great many people are discussing when they allude to an Arduino. In the following stage, there is a more complete summary of its highlights.

A few people think about the whole Arduino board as a microcontroller; however this is erroneous. The Arduino board really is an extraordinarily planned circuit board for programming and prototyping with Atmel microcontrollers.

The decent thing about the Arduino board is that it is moderately modest, connects directly to a PC's USB port, and it is dead-easy to arrangement and use (contrasted with other advancement sheets).

- A portion of the vital highlights of the Arduino Uno include:

1.An open source plan. he upside of it being open source is that it has an enormous network of individuals utilizing and investigating it. This makes it simple to discover somebody to assist you with troubleshooting your tasks.

2.An simple USB interfaces. The chip on the board connects directly to your USB port and registers on your PC as a virtual sequential port. This permits you to interface with it as through it were a sequential gadget. The advantage of this arrangement is that sequential correspondence is an incredibly simple (and reliable) convention, and USB makes associating it to present day PCs truly helpful.

3.Very helpful force the board and implicit voltage guideline. You can interface an outer force wellspring of up to 12v and it will control it to both 5v and 3.3v. It additionally can be fueled straightforwardly off of a USB port with no outside force.

4. An simple to-discover, and extremely inexpensive, microcontroller "mind." The ATmega328 chip retails for about $2.88 on Digikey. It has incalculable number of pleasant equipment highlights like clocks, PWM pins, outside and inside intrudes, and different rest modes. Look at the authority datasheet for additional subtleties.
5. A 16mhz clock. This makes it not the speediest microcontroller around, yet quick enough for most applications.
6. 32Bytes of glimmer memory for putting away your code.
7. 13 Computerized pins and 6 simple pins. These pins permit you to interface outer equipment to your Arduino. These pins are key for broadening the figuring capacity of the Arduino into this present reality. Basically plug your gadgets and sensors into the attachments that relate to every one of these pins and you are all set.
8. An ICSP connector for bypassing the USB port and interfacing the Arduino straightforwardly as a sequential gadget. This port is important to re-boot load your chip on the off chance that it debases and can presently don't converse with your PC. 9. An on-board LED connected to computerized pin 13 for quick a simple investigating of code.

10. And last, yet not least, a catch to reset the program on the chip Summary:

i. Microcontroller ATmega328p

ii. Operating Voltage 5Volts

iii. Input Voltage (recommended) 7-12Volts iv. Input Voltage (limits) 6-20Volts

v. Digital I/O Pins 14 (6 is PWM output) vi. Analog Input Pins 6 vii. DC Current per I/O Pin 40 mAmps viii. DC Current for 3.3V Pin 50 mAmps

ix. Flash Memory 32 KB of microcontroller of which 0.5 KB used by bootloader

x. SRAM 2 KB (microcontroller)

5.1.2.Ultrasonic Sensor:

Fig 5.1.2.1 Ultrasonic sensor

Ultrasonic sensors utilize sound to choose the detachment between the sensor and the closest article in its manner. How do ultrasonic sensors do this? Ultrasonic sensors are essentially steady sensors, yet they work at a repeat above human hearing. The sensor passes on a sound wave at a specific repeat. It by then tunes in for that specific sound wave to sway off of an article and return . The sensor tracks with of the time between sending of the sound wave and the sound wave in the wake of returning, Specifications The sensor picked for the Ultrasonic distance estimation Project was the HCSR04.This territory contains the points of interest and why they are basic to the sensor module.

The sensor modules necessities are as per the

following. i. Cost ii. Weight iii. Community of specialists

and backing iv. Accuracy of article recognition

v. Probability of working in a smoky situation vi. Ease of utilization The

HCSR04 Specifications are recorded underneath, vii Power Supply 5V DC

supply IX Quiescent Current.

5.1.2. Working of ultrasonic sensor:

The Ultrasonic sensor fills in as a burst sign is sent for brief range (is created) by the maker. After that there will be a tranquil period. This period is truly called "response time" and is the time keeping it together for reflected waves. The acoustic sent sign may find a hindrance or not. If an obstruction is found, the acoustic sign will be weaved indeed from the obstacle. This back bounced signal is assigned "resonation". The resonation is gotten by the getting transducer and is changed over into electrical sign. Commonly, this sign is increased, filtered and can be changed over into

cutting edge structure. Using the sat back among transmission and social event, the partition between the Ultra Sonic system and tangle/thing can be resolved.

• Accurate calculations.

• Can be used inside/outside.

• Does not get affected with external sources such as sunlight.

• Does not refract/does not pass through.

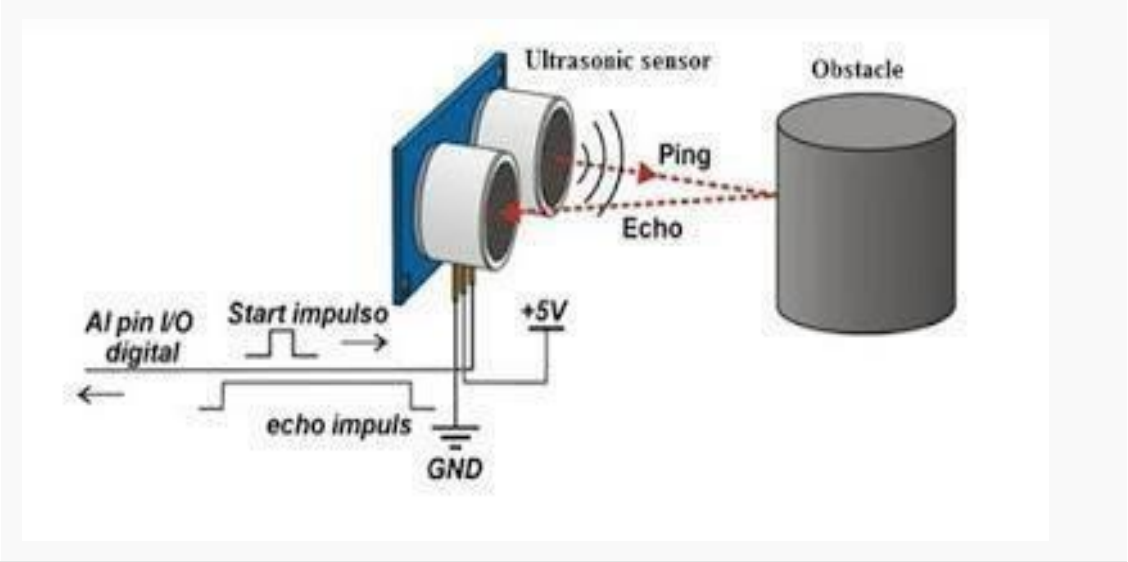

Fig.5.1.2.2. Working of ultrasonic sensor

5.1.3. Bread Board

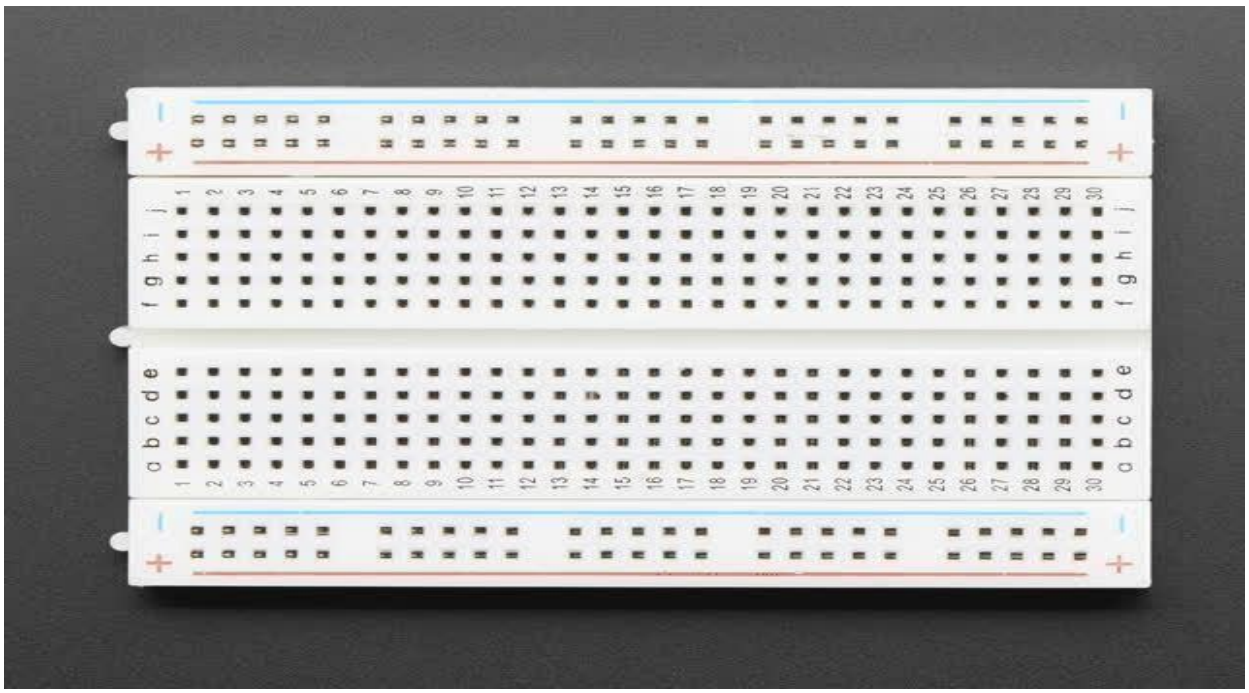

Fig 5.1.3. Bread board

A breadboard is a development base for prototyping of hardware. Since the solderless breadboard doesn't need fastening, it is reusable. This makes it simple to use for making transitory models and exploring different avenues regarding circuit plan. Hence, solderless breadboards are additionally well known with understudies and in innovative training. More established breadboard types didn't have this property. A stripboard (Veroboard) and comparable prototyping printed circuit sheets, which are utilized to construct semi-perpetual fastened models or unique cases, can only with significant effort be reused. An assortment of electronic frameworks might be prototyped by utilizing breadboards, from little simple and advanced circuits to finish focal handling units (CPUs).

Contrasted with more perpetual circuit association techniques, present day breadboards have high parasitic capacitance, moderately high opposition, and less dependable associations, which are liable to bump and actual debasement. Flagging is restricted to around 10 MHz, and not all things work appropriately even well beneath that recurrence.

5.1.4.BUZZER:

Fig 5.1.4.Buzzer

Buzzer or beeper is an audio signaling device, which may be powered, electromechanical, or piezoelectric. Typical uses of buzzers and beepers include alarm devices, timers, and confirmation of user input such as a mouse click or keystroke.

- **Buzzer Pin Configuration**

Pin Number	Pin Name	Description
1	Positive	Identified by (+) symbol or longer terminal lead. Can be powered by 6V DC
2	Negative	Identified by short terminal lead. Typically connected to the ground of the circuit

- **Buzzer Features and Specifications:**
  - Rated Voltage: 6V DC

- Operating Voltage: 4-8V DC
- Rated current: <30mA
- Sound Type: Continuous Beep
- Resonant Frequency: ~2300 Hz
- Small and neat sealed package
- Breadboard and Perf board friendly

- **How to use a Buzzer:**

A **buzzer** is a small yet efficient component to add sound structures to our project/system. It is very minor and solid 2-pin structure hence can be easily used on breadboard, Perf Board and even on PCBs which makes this a extensively used component in most electronic applications.

There are two types are buzzers that are normally available. The one shown here is a simple buzzer which when powered will make a Nonstop Beeeppp.... sound, the other type is called a readymade buzzer which will look larger than this and will produce a Beep. Beep. Beep. Sound due to the internal wavering circuit present inside it. But, the one shown here is most widely used because it can be customized with benefit of other circuits to fit easily in our application.

This buzzer can be used by merely powering it using a DC power supply ranging from 4V to 9V. A simple 9V battery can also be used, but it is optional to use a regulated +5V or +6V DC supply. The buzzer

- **Applications of Buzzer:**

- Alarming Circuits, where the user has to be alarmed about something
- Communication equipment
- Automobile electronics

- Portable equipment's, due to its compact size.

5.1.5 Jumper wires

Fig 5.1.5 Jumper wires

- A jumper wire (otherwise called jumper wire, or jumper) is an electrical wire, or gathering of them in a link, with a connector or pin at each end (or at times without them – essentially "tinned")
- Jumper is regularly used to interconnect the segments of a breadboard or other model or test circuit, inside or with other hardware or parts, without binding.
- Singular jumper wires are fitted by embeddings their "end connectors" into the openings gave in a breadboard, the header connector of a circuit board, or a bit of test hardware.

5.1.6 Power Bank

Fig 5.1.6 Power bank

- A battery charger, or recharger, is a gadget used to place energy into an auxiliary cell or battery-powered battery by driving an electric flow through it.
- The charging convention (how much voltage or current for how long, and what to do when charging is finished, for example) relies upon the size and sort of the battery being charged.
- Some battery types have high capacity to bear cheating (i.e., kept charging after the battery has been completely energized) and can be revived by association with a steady voltage source or a consistent current source, contingent upon battery type.
- Straightforward chargers of this sort should be physically separated toward the finish of the charge cycle, and some battery types totally require, or may utilize a clock, to cut off charging current at some fixed time, roughly when charging is finished.

5.2 Software Specifications

The source code for the IDE is released under the GNU General Public License, version 2. The Arduino IDE supports the languages C and C++ using special rules of code structuring. The Arduino IDE supplies a software library from the Wiring project, which provides many common input and output procedures. User-written code only requires two basic functions, for starting the sketch and the main program loop, that are compiled and linked with a program stub *main()* into an executable cyclic executive program with the GNU toolchain, also included with the IDE distribution.

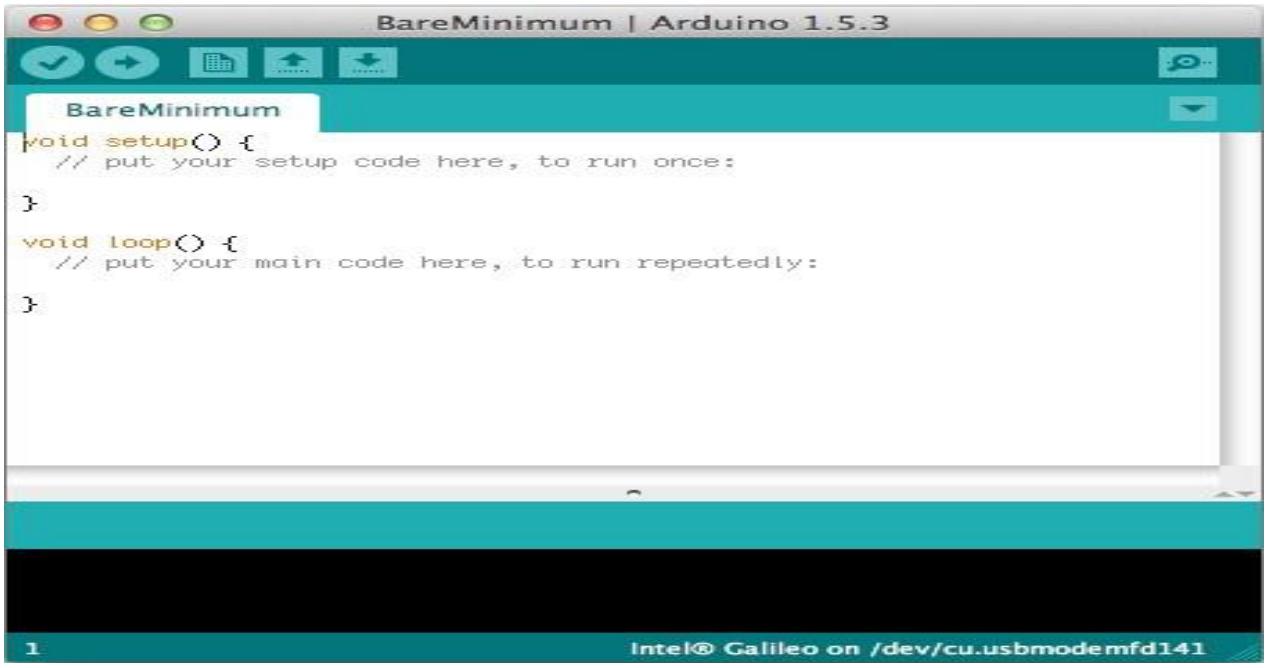

Fig 5.2.1 Sample Arduino

CHAPTER-06 ADVANTAGES AND DISADVANTAGES

6.1.Advantages

- By wearing this device they can fully dodge the use of white cane and such other devices.
- Low design time and production cost.
- This system is valid for both the indoor and outdoor environment.
- Reaching the destination is very easy using this device and it occupies less space.

- Low power consumption.
- This device will support the blind to navigate without holding a stick which is a bit annoying for them.
- They can simply wear it as a band and it can role very accurately and they only need a very little training to custom it.

6.2.Disadvantages

- Not designed for underwater use : Ultrasonic sensors spoil when use underwater, this means that the user is permitted to use this device when it is raining.
- Sensing accuracy is affected by changes in temperature of 5-10 degrees or more : Under temperature or higher temperature affect the system operation. Most ultrasonic sensors have a working range of -25* C to +70* C.
- Have a limited detection range : Ultrasonic sensor have a maximum range of 10 meters.
- Less mechanical strength.

CHAPTER 07 RESULTS AND DISCUSSION

- The introduced framework is planned and designed for the utilization of the visually impaired and outwardly handicapped individuals. This gadget can deal with a few expresses that the outwardly weakened individuals face.

- This gadget reacts to the client in all the conditions which is looked by the visually impaired individuals with the assistance of the utilization of the Ultrasonic sensors and the Arduino Board.

- Case 1: When the snag or the item is in the left it will tell the client that: The
- Case 2: When the deterrent is in right it will say: The obstruction in right.

- Case 3: When the obstruction is in front, the gadget will say: the impediment is in front.

- Essentially, for all the headings like left, right, back and so forth it will advise the client wearing it, with the improvement of the expectations for everyday comforts of the individuals, we have become so materialistic that we have failed to remember how the actually handicapped individuals carry on with an extreme life.

- They go through thorough, impassive conduct towards them for being genuinely incapacitated. They become subject to others in a manner for their everyday schedule errands. Visually impaired a lot people consistently rely upon others for their normal exercises.

- Eyes are answerable for noticing and listen the external climate; brokenness of such prime receptor seriously influences the information seeing ability of the external climate. In this way, heading over to places in such a climate is a major test since dazzle individuals can't rely upon their own eyes and hence face numerous challenges.

- This venture will assist them with conquering their deterrents. Wearable gadget and in this way will help the client in voyaging and identifying the yield when an article is recognized.

7.2 Expected output

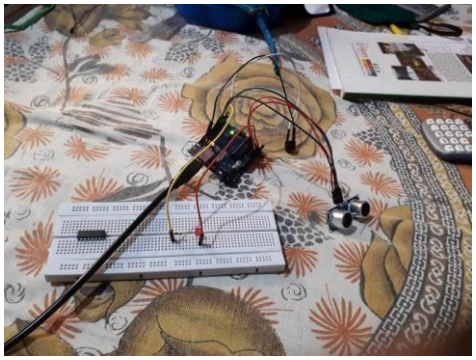

Fig .7.2.1 Expected output 1

Fig.7.2.2 Expected output 2

CHAPTER 08 CONCLUSION AND FUTURE SCOPE

Conclusion

On the basic, modest, productive, simple to convey, configurable, simple to deal with electronic direction framework with a lot additionally astonishing properties and points of interest is proposed to give helpful aide and backing to the visually impaired and outwardly debilitated people. The framework will be proficient and one of a kind in its capacity in indicating the source and distance of the items that may experience the visually impaired. It can filter and identify the hindrances in the regions like left, right, and before the visually impaired individual paying little mind to its tallness or profundity. With the proposed design, whenever built with all things considered exactness, the visually impaired will have the option to move starting with one spot then onto the next without others help. The goal of this task is Third Eye for the Blind is to plan an item which is a lot of valuable to those individuals who are outwardly hindered and the individuals who regularly need to depend on others. The third eye for Blind venture is a development which causes the visually impaired individual to move around and move between different places with speed and certainty by realizing the close by obstructions utilizing the assistance of the wearable band which creates the ultrasonic waves which advise them with buzz sound or vibrations. It permits the client the individuals who are outwardly weakened to walk uninhibitedly by distinguishing the snags. They just need to wear this gadget as band or fabric on their body. Consequently, this task Arduino based obstruction locator for dazzle individuals is another technique to determine their issues. A less mind boggling versatile, cost proficient, simple to deal with a successful framework with a lot all the more astounding properties and focal points are proposed to offer help for the visually impaired. The framework will be exceptionally simple to discover the distance between the items and the sensor. It can recognize the articles toward each path the

visually impaired individual. Without the assistance of others the visually impaired individual can move starting with one spot then onto the next spot.

Future scope

The whole undertaking can be made as coat, with the goal that the gadget shouldn't be wear individually. By explicitly suing the particular sheets that are planned, utilizing them rather than Arduino and furthermore by utilizing great ultrasonic sensors makes and gives quicker reaction which make the gadget equipped for working in jampacked spots and subsequently this will be actualized later on improvement of this gadget. By especially suing the particular sheets that are formed, using them as opposed to Arduino and besides by using first class ultrasonic sensors makes and gives snappier response which make the contraption fit for working in amassed spots and thusly this will be completed later on update of this device.

- **GPS**: Global positioning system uses longitude and latitude calculations for find out the location of object. Since it uses geospatial satellites signals, to calculate the positional difference from satellite; the correctness is quite in the range of 100m to 300m.For the person who is walking on the road can receive these signals, but for indoor it is very hard to receive the same. Also the accuracy mandatory is not achievable; hence it is a negated solution for blind person to use for navigating device.
- **RFID information grid:** RFID is radio frequency identification device. It holds exclusive information such as number or symbol or text etc. It is inactive device which is energized by interrogators emf field. To method a information grid the RfID tags are arranged in such a way that it could designate the longitudinal and latitudinal position. The searching device enquires about the positional information and refers it to server by sms. The server holds database with relational explanation of local position for reference send by sms. It search in database for similar and broadcast it on FM which could be heard by the enquirer's device.

- **Mobile Platform Devices:** Mobility is one of the main problems run into by the blind in their life. Due to the growth of modern technologies, many different types of devices are now known as electronic travel supports. Among these aids are sonic pathfinder, Mowat –Sensor and Guide cane which are named clear path indicators or obstacle detectors subsequently the blind can only know whether there is an obstacle in the path ahead. These devices are used to search for problem in front of the blind person, and they function in a manner similar to a flashlight, which has very narrow directivity.

REFERENCES

- Shraga Shovel, Iwan Ulrich, Johann Borenstien. Nav Belt and the Guide Cane, IEEE Transactions on Robotics & Automation. 2003; 10(1):9-20.

- D. Dakopoulos, N.G. Bourbakis, "Wearable Obstacle Avoidance Electronic Travel Aids for Blind: A Survey", IEEE Trans. Systems Man and Cybernetics Part C: Applications and Reviews, vol. 40, no. 1, pp. 25-35, 2015.

- Hugo Fernandesc , João Barroso "Blind Guide: an ultrasound sensor-based body area network for guiding blind people ",6th International Conference on Software Development and Technologies for Enhancing Accessibility and Fighting Infoexclusion (DSAI 2015)

- Sabarish S. Navigation Tool for Visually Challenged using Microcontroller, International Journal of Engineering and Advanced Technology (IJEAT), 2013; 2(4):139-143.

- Espinosa MA, Ungar S, Ochaíta E. Blades comparing methods for Introducing Blind and

  Visually Impaired People to unfamiliar urban environments., Journal of Environmental psychology. 1998; 18:277-287. [6] Pooja Sharma, Shimi SL, Chatterji S. A Review on Obstacle Detection and Vision, International Journal of Science and Research Technology. 2015; 4(1):1

APPENDIX

```
#define trigPin 9
 #define echoPin 8
#define Buzzer1 5
#define Led1 6
```

```
int sound = 250;
void setup() {
   Serial.begin                    (9600);
pinMode(trigPin, OUTPUT);
   pinMode(echoPin,        INPUT);        pinMode(Buzzer1,        OUTPUT);
pinMode(Led1, OUTPUT);
  }
void loop() { Serial.begin(9600);
  long    duration,    distance;    digitalWrite(trigPin,    LOW);
delay(2);
  digitalWrite(trigPin,              HIGH);
delay(10);
  digitalWrite(trigPin, LOW);
  duration = pulseIn(echoPin, HIGH); distance = (duration/2) / 29.1; digitalWrite(Buzzer1,
LOW); digitalWrite(Led1, LOW);
  if (distance<40)
     { digitalWrite(Led1, HIGH); delay(2000);
      }
   if (distance<20)
     {          digitalWrite(Led1,          HIGH);          delay(2000);
digitalWrite(Buzzer1, HIGH); delay(2000);
     }
  if     (distance<10)    {    digitalWrite(Led1,    HIGH);
delay(2000);
     digitalWrite(Buzzer1, HIGH);
      delay(2000);
      }
  }
```