



Third Eye for the Blind Person

Prof S B Totade¹, Prof P V Raut², Samiksha Kurekar³, Ankita Lone⁴

¹Professor (ECE) SSCET , ² Professor(ECE) SSCET , ³Student (ECE) SSCET, ⁴Student (ECE) SSCET

ABSTRACT:

Arduino based third eye or extra vision for blind people have a project which include both hardware and the software work and it helps the person to recognize the object by the help of ultrasonic waves which comes from ultrasonic sensor with a vibration which is generated by the buzzer. This Project is influenced by the Stick which is used by the blind people while walking for long term carry the stick is measure issue for weak people. So, this is the wearable invention for the weak and blind people they don't need to carrying anything in hand while walking they should only wear our invention and used to get walking easily. The Arduino is a software device which include. coding as a software function and Ultrasonic sensor, buzzer, Battery and more things as a hardware function, Ultrasonic sensor has a work to recognize the object near them and providing the signal via buzzer to the user which help the person to reach properly at their destination.

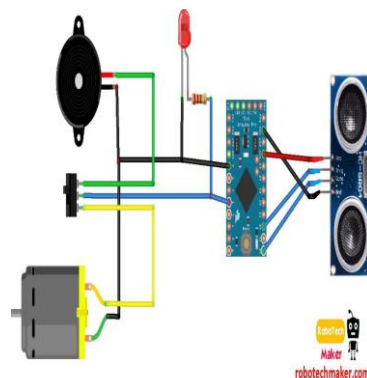
Keywords:• Arduino Nano • Ultrasonic Sensors • LEDs • Resistors(1000 ohm) • Jumper cables • Breadboards • Buzzers • Vibrating Motor • Toggle switch • L.C.D Display

Introduction:

As per the definition of blindness, we mean the person without sense of sight. A blind person has no ability to see anything. While struggling for the different levels of comforts of the general population, we have reached to a point where we have started to completely ignore the people who are living a miserable life due to lack of vision. They face enormous challenges in their daily lives and hence end up living a dependent life. They experience a completely different life from the normal people and experience detached and uninterested conduct towards them for being physically disabled. They need other individuals for their movement from one place to another. Sight is the basic sense of life and therefore a person's movement from place to place in this condition is a major challenge for the visually impaired . The target of this task , This project for the blind or visually impaired person will provide a gadget that is helpful to them as well as the persons who depend on any individual due to lack of sight. Third eye for people who are blind is an innovation which helps the blind people to navigate with speed and confidence by detecting the nearby obstacles using the help of ultrasonic waves and notify them with buzzer sound or vibration. They only need to wear this device as a band or cloth.

According to WHO 39 million peoples are estimated as blind worldwide. They are suffering a lot of hardship in their daily life. The affected ones have been using the traditional white cane for many years which although being effective, still has a lot of disadvantages. Another way is, having a pet animal such as a dog, but it is really expensive. So the aim of the project is to develop a cheap and more efficient way to help visually impaired to navigate with greater comfort, speed and confidence.

Block Diagram



Working: This proposed system consists the equipment like Arduino Nano, ultrasonic sensor, bread board, 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, 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 are

connected to GND of the Arduino. The +ve of the LED and the middle leg of switch is connected to the Arduino pin 5. The +ve of Buzzer is wired to the first leg of the switch. The Ultrasonic sensor is wired accordingly. The Ultrasonic sensor pin VCC is connected 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 7, Ultrasonic sensor pin Echo is connected to the Arduino PIN 6. The switch used here is for selecting the mode. (Buzzer should need or not). At the end, after all the connections are done to the Arduino board upload the code to arduino board and power the other modules using a power bank or the power supply. The Ultrasonic sensor here used as a transceiver. The ultrasonic waves are emitted by the transmitter when the objects are detected. Both the transmitter and receiver are inside the ultrasonic sensor. We calculate the time interval between the transmitted and received signal. The distance between the object and sensor is calculated using this. When we increase the distance between the object and the sensor the coverage angle will decrease. Sensor has coverage of 60 degree. Thus, the objective is to cover a wide angle to detect the obstacles with the help of the ultrasonic sensors to help the blind and make it easy for them to move around easily without any hassle. Hence, the distance calculation is calculated and the sensor detects and the further procedure of the buzzing sound to the user is carried out. Thus, this way Third Eye for Blind will be designed for the visually impaired people and will make it very easy and convenient as it will be a wearable device and thus will help the user in travelling and detecting the obstacles while walking very easy

Application :Security Systems ,Interactive Animated exhibits ,Parking assistant system ,Robotics Navigation

Advantages:Guides blind people ,Alerts through voice based message system ,Obstacle detection using UV distance finder sensor ,Efficient low cost design.

Conclusion

This device will help the blind person be more alert above the obstacles .This project is mainly for blind people to avoid obstacles by themselves .This project provides efficient and economical security system. Thus, design and architecture of the project is a new concept of Arduino-based Virtual Eye for the blind people. It is a simple, light weight machine, cheap, efficient, easy to carry, configurable , easy to handle electronic system with amazing properties and advantages is proposed to provide constructive assistant and support for the blind persons. It is able to scan ,sense and detect the obstacles in the areas like left, right, and in front of the blind person regardless of its height or depth. so, with the help of our device the blind person can walk with confidence and without any problem.

Future Scope : The wearable technology for blinds resolves the existing technical problems. Nowadays, there are many instruments and intelligent devices for visually impaired people for navigation. Still, most of them have specific issues with carrying, and the major drawbacks are those that need a lot of training to use. One of the main peculiarities of this innovation is that it is affordable for everyone. There are no such devices available in the market that can be worn like cloth and have such a low cost and simplicity. When used on a large scale, with improvements in the prototype, it will drastically benefit the community.

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