THIRD EYE FOR THE BLIND

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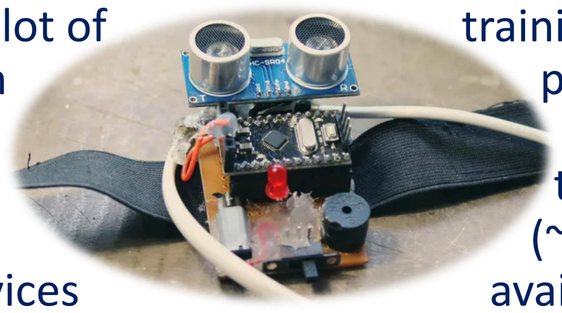
Introduction

Third eye for people who are visually impaired is an innovation which helps the them to navigate with speed and confidence by detecting the nearby obstacles using the help of ultrasonic waves and an LDR to notify them about the presence or absence of light with buzzer sound or vibration. They only need to wear this device as a band.

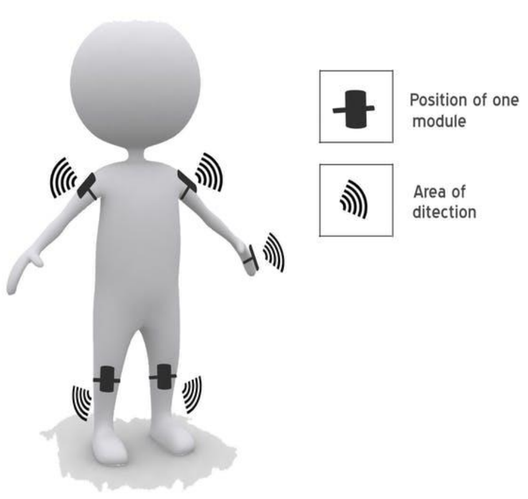
Scope of the Project

This is the first wearable technology for blind people which resolves all the problems of existing technologies. Now a days there are so many instruments and smart devices for visually impaired peoples for navigation but most of them have certain problems for carrying and the major drawbacks is those need a lot of training to use. The one of the main peculiarity of this innovation is, it is affordable for everyone, the total cost being less than $25 (~1500INR). There are no such devices available in the market that can be worn like a cloth and having such a low cost and simplicity. When used on a large scale, with improvements in the prototype, it will drastically benefit the community. By wearing this device, they can fully avoid the use of white cane and such other devices. This device will help the blind to navigate without holding a stick which is a bit annoying for them. They can simply wear it as a band or cloth and it can function very accurately and they only need a very little training to use it.

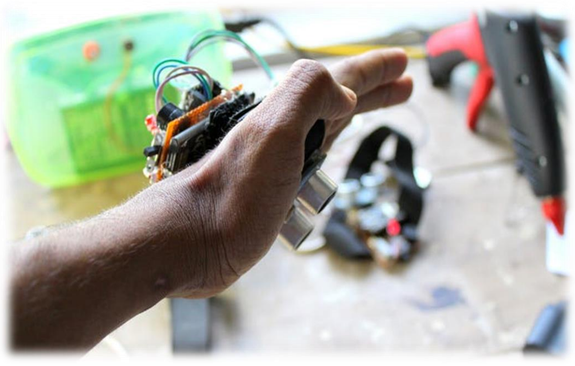


Methodology

We have designed a special wearable device based on the Arduino board which can be worn like a cloth for blinds. This device is equipped with five ultrasonic sensors, consisting of five modules which are connected to the different parts of the body. Among them, two for both shoulder, another two for both knees and one for the hand. Using the five ultrasonic sensors, blind people can detect the objects in a five dimensional view around them and can easily travel anywhere. When the ultrasonic sensor detects obstacle the device will notify the user through vibrations and sound beeps.



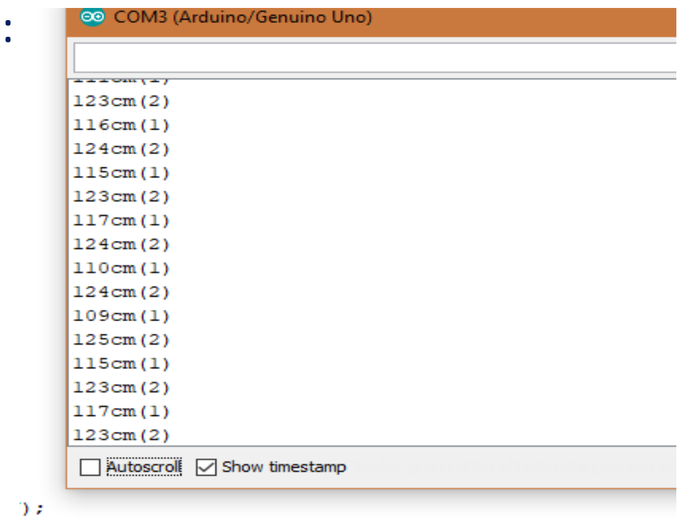
The intensity of vibration and rate of beeping increases with decrease in distance and this is a fully automated device.



The module features an LDR sensor too which notifies the person about intensity of light around him enabling him to identify if he is in a dark or bright room by certain different beeping tones for darkness and brightness.

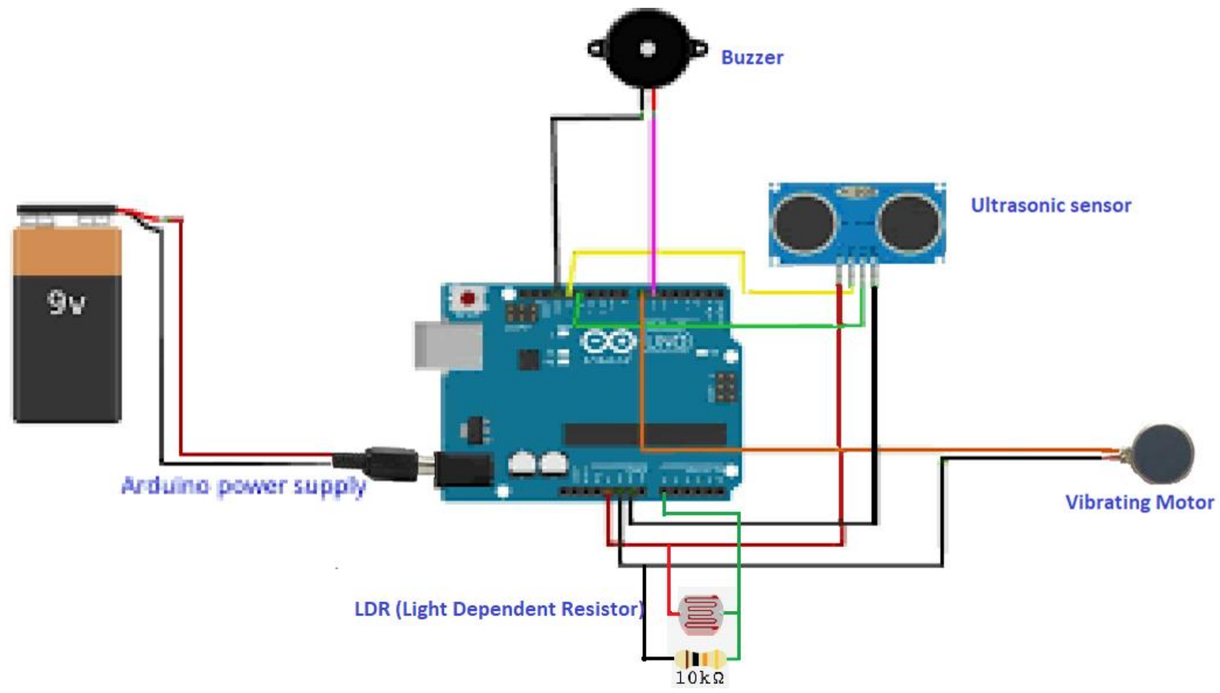
Results

✓ Tested Successfully by blindfolding a person. A screenshot of distance detection by the ultrasonic sensor is shown below :



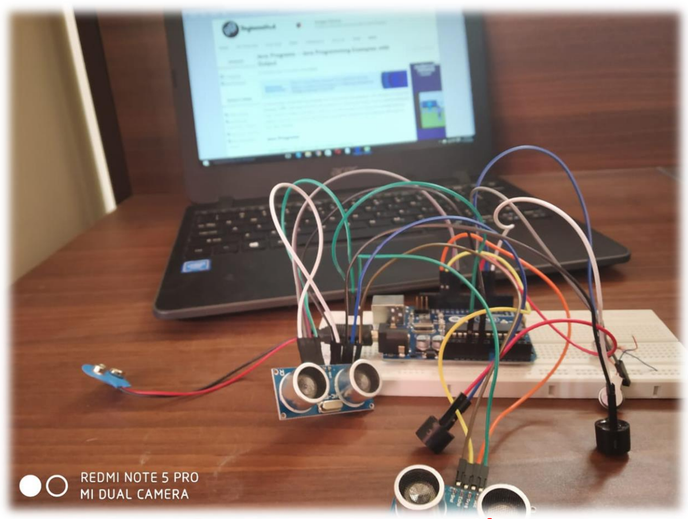
*Since there are two sensors , (1) indicates the reading of first sensor and (2) indicates reading of the second one.

Circuit Diagram



Conclusion

Use of specially designed boards like Arduino and high-quality ultrasonic sensors makes faster response which make the device capable of working even in heavily crowded zones.



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