ULTRASONIC GLASSES FOR BLIND PEOPLE

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Motivation/ Introduction

Our team's project is an Arduino based project. This project which we are going to make is a general purpose project which can be implemented in real life and can solve major problems. It makes use of ultrasonic waves. The project on which we are working on is making ultrasonic glasses for the blind so that when a obstacle comes in front of the blind the glasses can sense it and alert the blind person of an obstacle coming in front of his path. It can be a mode to making the blind walk freely in a place without any actual fear or tripping over anything.

Scope of the Project

This is the first wearable technology for the blind people which resolves all the problems of existing technologies. Now a days there are so many instruments and smart devices for visually impaired people for navigation but most of them have certain problems certain problems for carrying and major drawbacks is those need a lot of training to use.

Methodology

This device includes a pair of glasses and an obstacle detection module fitted in it in the centre, a processing unit, an output device i.e. a beeping component and a power supply. The obstacle detection module and the output device is connected to the processing unit. The power supply is used to supply power to the central processing unit. The obstacle detection module basically consists of a ultrasonic sensor, processing unit consists of a control module and the output unit consists of a buzzer. The control unit controls the ultrasonic sensors and get the information of the obstacle present in front of the man and processes the information and send the output through the buzzer accordingly. These Ultrasonic Smart Glasses for Blind people is a portable device, easy to use, light weight, user friendly and cheap in price. These glasses could easily guide the blind people and help them avoid obstacles.

Things used in this project are:

1. Arduino
2. Ultrasonic sensor
3. Buzzer
4. Jumper wires
5. 9V battery
6. Sunglasses
7. Cap

Basic circuit diagram :
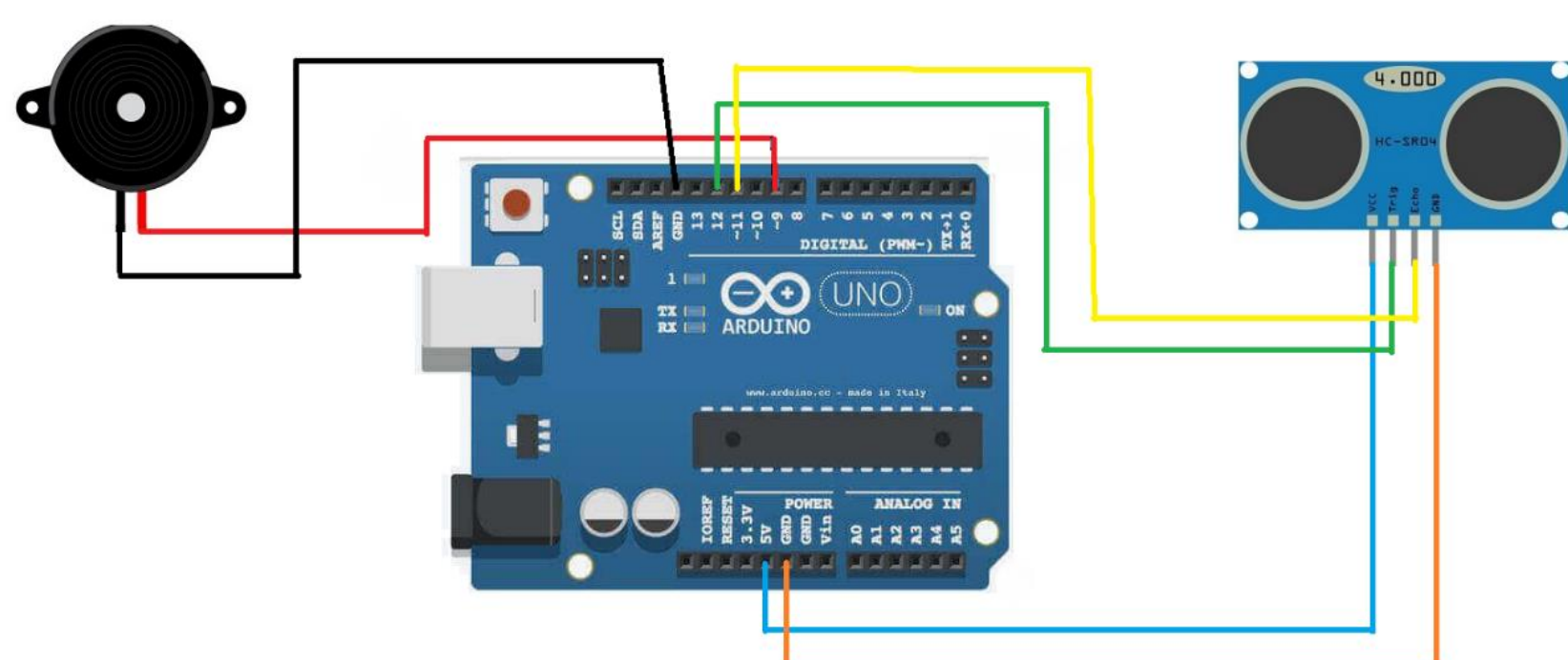
Results

When a person wears these glasses and approaches any obstacle, the Ultrasonic sensor calculates the distance between itself and the obstacle and then send it to the Arduino. Based on the distance, output is given to the buzzer. For example, if the obstacle is approximately 40 cm away, then the buzzer gives long intermediate beeps, whereas if the object is very close, i.e. less than 10, it will give fast repetitive beeps. The intensity of beeps is directly proportional to the distance calculated by the sensor.
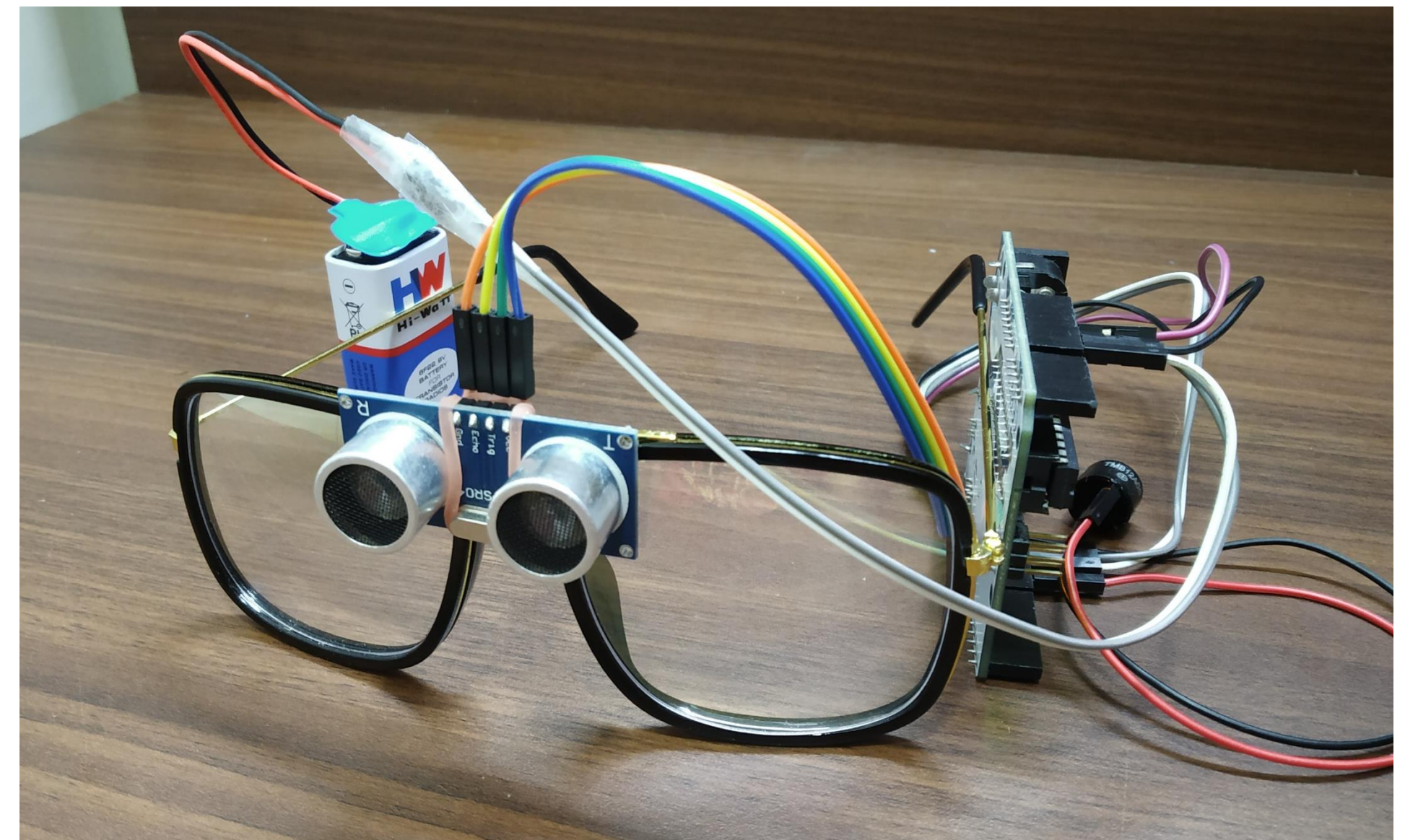
Conclusion/ Summary

The entire module can be embedded in a cap ,so that it doesn't add any pressure to the person wearing sunglasses. Use of specifically used Arduino and high quality ultrasonic sensors makes faster response which makes the device capable of working even in heavily crowded zones

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