THIRD EYE

FOR BLIND

TEAM MEMBERS:

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INTRODUCTION

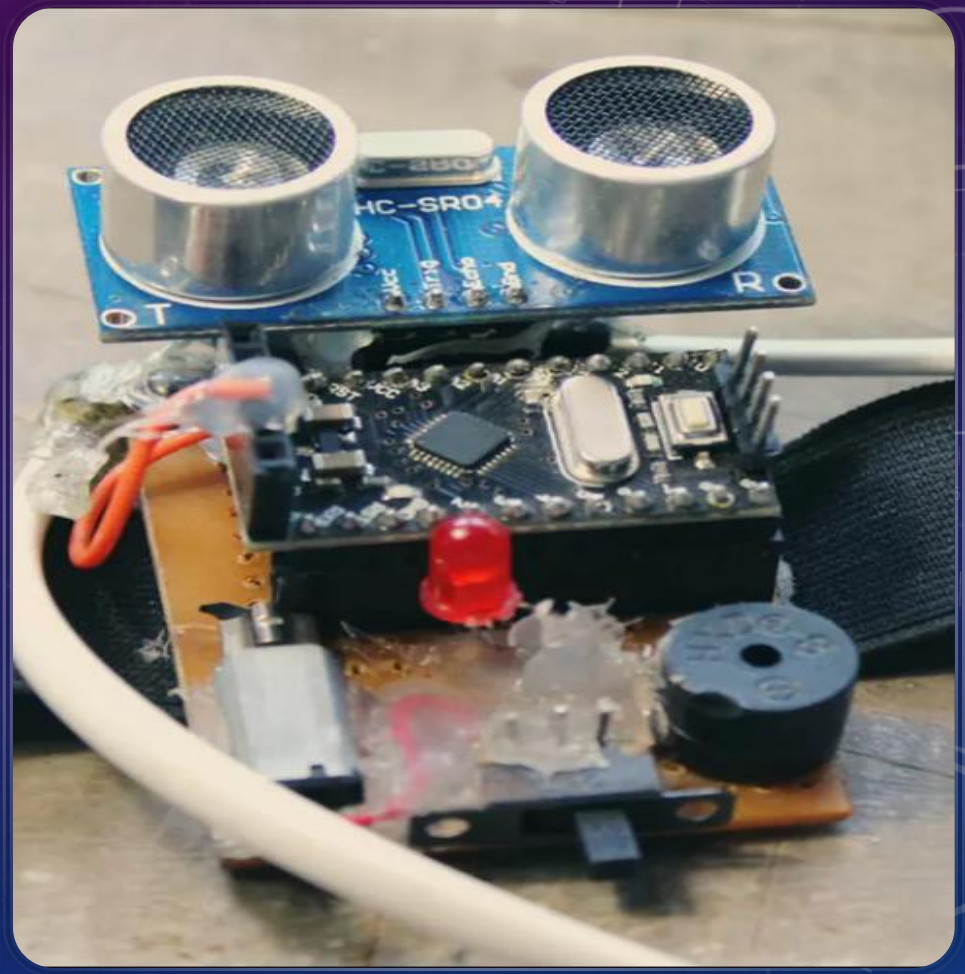
Third eye for people who are blind is an innovation which helps the blind people to navigate with speed and confidence by detecting the nearby obstacles using the help of ultrasonic waves and notify them with buzzer sound or vibration. They only need to wear this device as a band or cloth.

PROBLEMS OF THE EXISTING SYSTEMS

- White cane - May easily crack/break . The stick may get stuck at pavement cracks of different objects.
- Pet dog - Huge cost. (~$42,000 / 280000Rs)
- Common Disadvantages (Including the the smart devices) **Cannot be carried easily,** needs a lot of training to use

FEATURES OF THE PROJECT

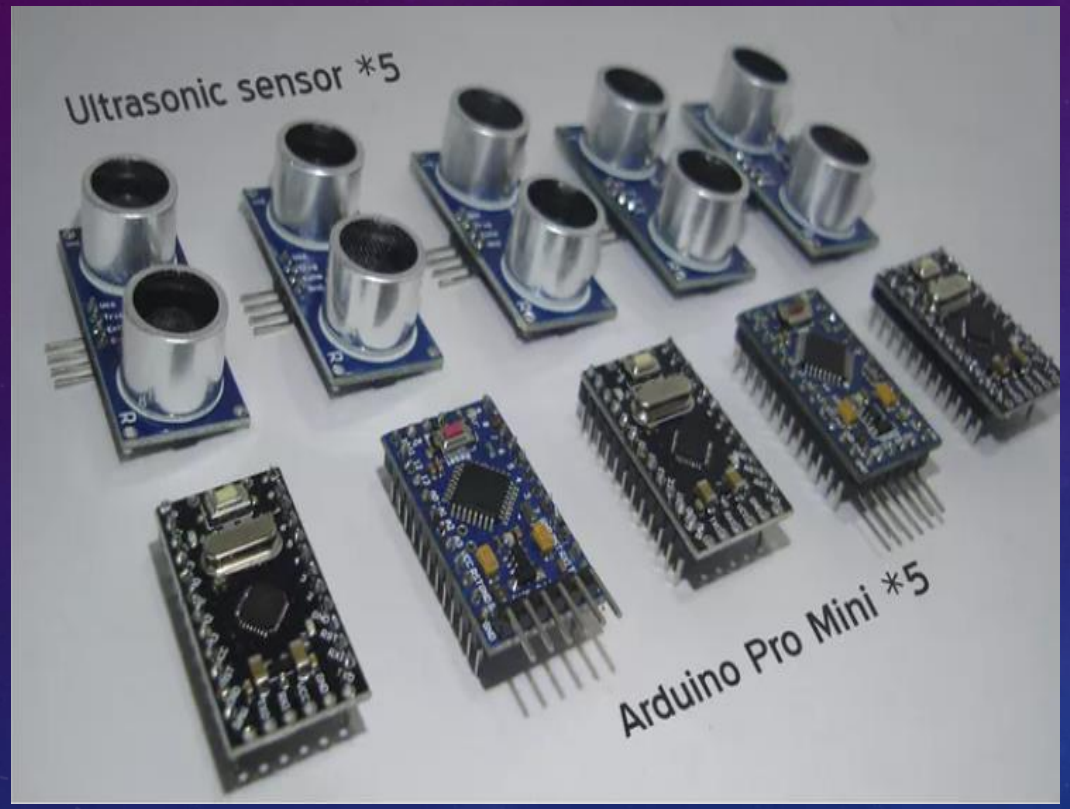
- By wearing this device they can fully avoid the use of white cane and such other devices.
- This device will help the blind to navigate without holding a stick which is a bit annoying for them.
- They can simply wear it as a band or cloth and it can function very accurately and they only need a very little training to use it.

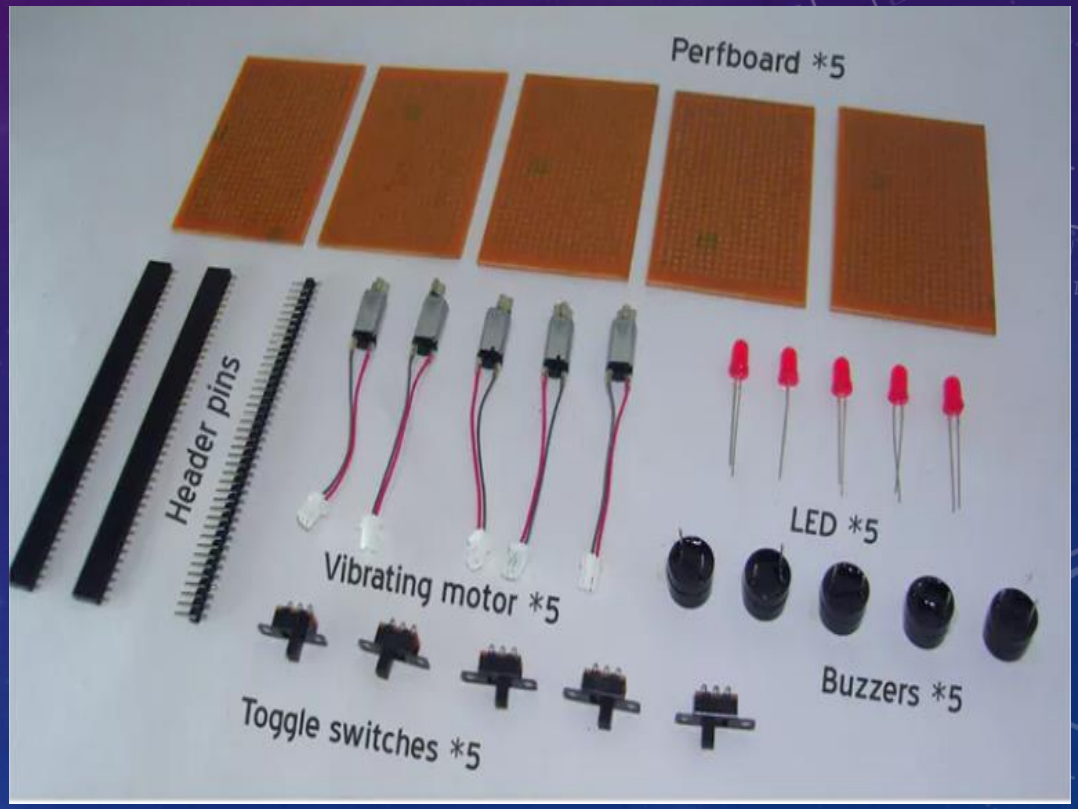


DESCRIPTION OF THE PROJECT

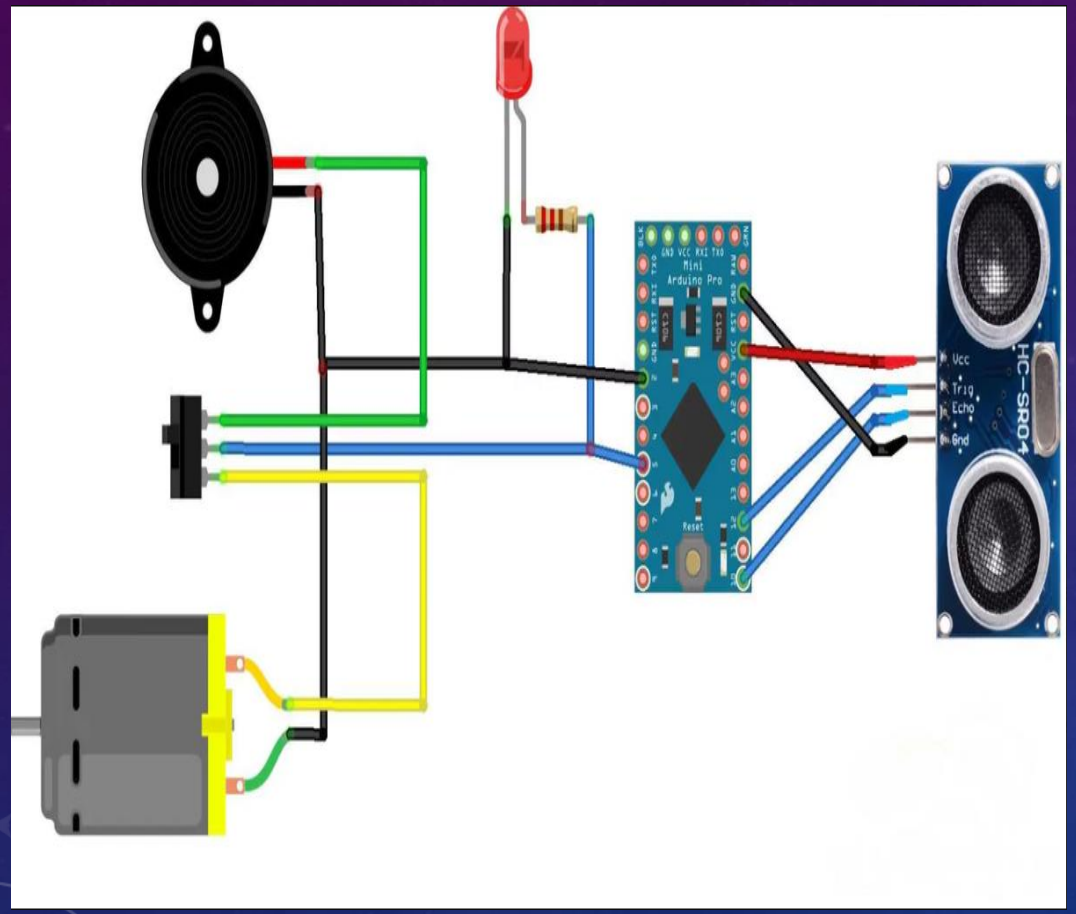
- We have designed a special wearable device based on the Arduino board which can be worn like a cloth for blinds.
- This device is equipped with five ultrasonic sensors, consisting of five modules which are connected to the different parts of the body. Among them, two for both shoulder, another two 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.

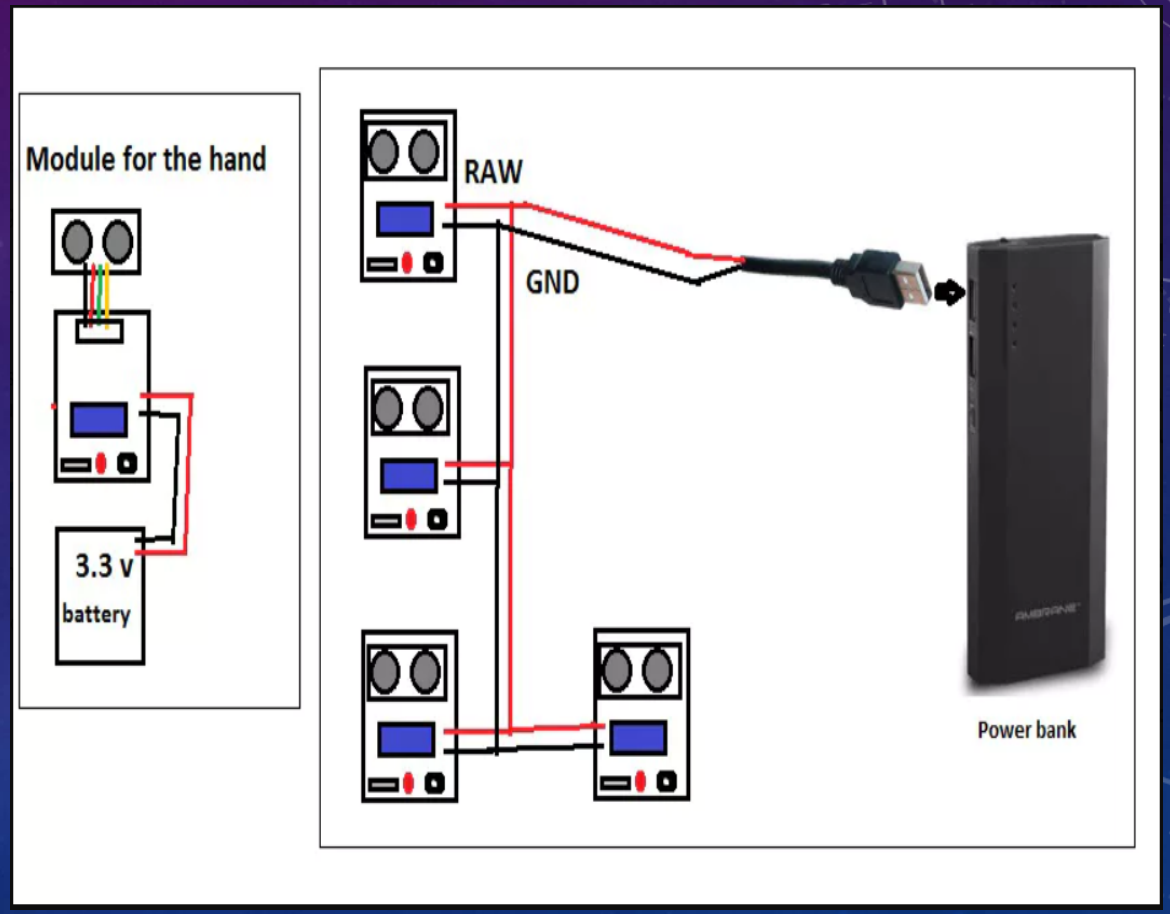
PROTOTYPING OF THE IDEA – PARTS USED





CIRCUIT DIAGRAM





Wiring Instructions

- ✓ Ground of LED, buzzer and vibration motor to GND of arduino
- ✓ +ve of LED and middle leg of switch to Arduino pin 5
- ✓ +ve of Buzzer to first leg of switch
- ✓ +ve of Vibration motor to third leg of switch
- ✓ Ultrasonic sensor
- ✓ Ultrasonic sensor pin VCC - Arduino pin VCC
- ✓ Ultrasonic sensor pin GND - Arduino pin GND
- ✓ Ultrasonic sensor pin Trig - Arduino pin 12
- ✓ Ultrasonic sensor pin Echo - Arduino PIN 12

The switch used here is for selecting the mode. (buzzer or vibration mode.)

- ✓ First cut the pref board in 5 X 3 cm dimension and solder the female headers for the Arduino to the board.
- ✓ Then solder the buzzer.
- ✓ Then connect the vibrating motor using the glue gun and solder wires to it.
- ✓ Then connect the LED.
- ✓ Then connect the switch.
- ✓ Then connect header pins for ultrasonic sensors and for battery input.
- ✓ Then solder everything as shown in the circuit diagram.
- ✓ Now connect the Arduino and ultrasonic sensor to the board
- ✓ Also connect the elastic band to all the modules.
- ✓ Connect the ultrasonic sensor to the board by using 4 jumper cables.
- ✓ Then connect a 3.7 volt mobile battery to this module.
- ✓ Then connect the elastic band.

FEATURE IMPROVEMENTS

- The entire project can be made in the form of jacket, so that the device doesn't need to be wear one by one.
- Use of specially designed boards instead of arduino and high quality ultrasonic sensors makes faster response which make the device capable of working in crowded.

THANK YOU