



DEPARTMENT OF
COMPUTER SCIENCE AND ENGINEERING

PROJECT REPORT ON

**OBSTACLE AVOIDING EYEGLASSES BY ULTRASONIC SENSOR
AND ARDUINO FOR BLIND PEOPLE**

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DECLARATION

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Here we are, **MD SAIFUL ISLAM RIMON** (213002039), **MD ARAFAT** (213002028), **MD ASADUZZAMAN** (213002145) and **HRIDOY DEBNATH** (213002239) in a team “**BOT-X**” confirm that this report and the work presented in it are our own achievement. We have read and understood the penalties associated with plagiarism.

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CERTIFICATION

GREEN UNIVERSITY OF BANGLADESH

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

This is to certify that this project is fully adequate in scope and quality as an undergraduate project work.

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ABSTRACT

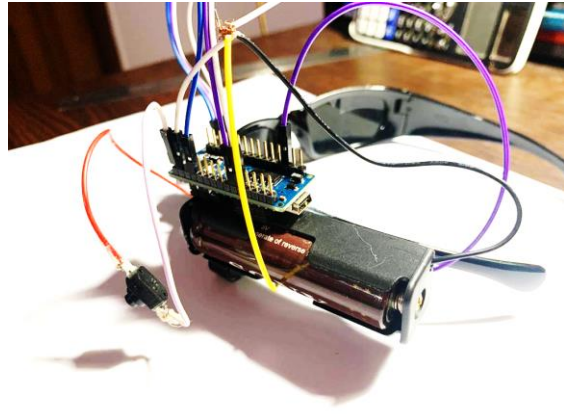
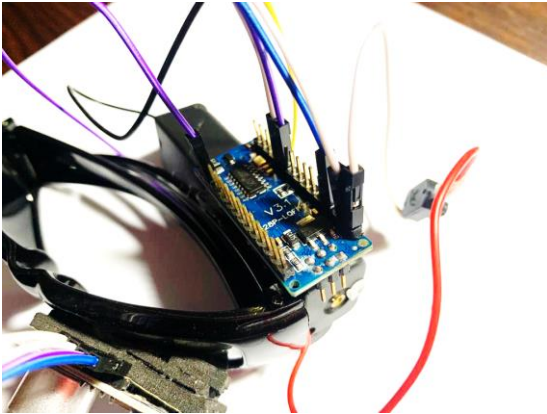
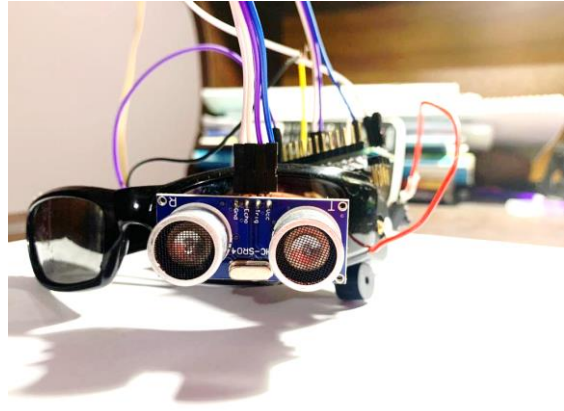
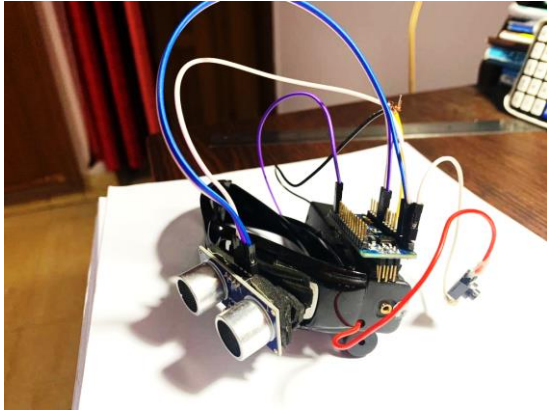
OBSTACLE AVOIDING EYEGLASSES

It describes about the obstacle detection by ultrasonic sensor. The main aim of this project is to make easier move around for the blind people. The ultrasonic sensor detect obstacle when something come in front of the sensor. In this project we used Arduino to provide power all the sources. We supplied power to the Arduino by a battery and Arduino distributed power among all the other components. We used buzzer as indicator on detection for obstacle.

OBJECTIVES

- To implement how Arduino and ultrasonic sensor can be used for real life problem.
- To make easier life for the blind people.

FIGURES AND PICTURES:



THEORY

Walking in crowd for the blind people is very difficult. We can see many blind people in around us. From this thinking we have motivated to do this project. This project is based on Arduino and ultrasonic sensor. The main purpose of the obstacle detection to alert the blind people by a beeping buzzer. So that they can move safely. Ultrasonic sensor is used to detect obstacle. Arduino receive voltage from source and distributes to other components. This project helps in crowded. The obstacle detection system is very convenient for blind people because the incident will not come by saying to the people, this incident will happen unconditionally because it's very natural for blind people. We can use different type of alarm like vibrator motor. This type of alarm is very convenient for the blind people whose hearing sense is less and also who are stuck in the crowded places.

TOOLS:

NAMES	PRICES (BDT)
1. Arduino Nano V3.0 with cable	740
2. Ultrasonic sensor	100
3. Jumper wires	200
4. Buzzer	40
5. Battery	100
6. Battery holder	40
7. Switch (Push Button)	40
8. Sunglass	100
9. Glue gun	300
10. Both side tape	70
11. Required code for Arduino Nano	_____
TOTAL	1730 (BDT)

BUILDING PROCESS:

1. Stick the ultrasonic sensor with one glass using both sided tape.
2. Stick battery holder with the frame.
3. Connect four jumper wires with the pin of ultrasonic sensor.
4. Connect trig pin and echo-pin with A2 and A1 pin Arduino.
5. Connect VCC pin of ultrasonic sensor with the 5V volt pin of Arduino.
6. Connect switch with the positive side of battery and holder and 3 jumper with negative side.
7. Connect three negative wires with GND pin of Arduino, GND of ultrasonic sensor, and negative pin of buzzer.
8. Connect positive pin of buzzer with the D10 pin of Arduino.
9. Connect switch with the VIN pin of Arduino.
10. Stick Arduino, switch and buzzer with the battery holder using glue gun or both sided tape.
11. Finally write the required code.
12. Upload it to Arduino using USB from PC/mobile.

CODE FOR ARDUINO

```
int trigpin=A2;
int echopin=A1;
int buzzer=10;
float distance;
float duration;

void setup() {
  pinMode(trigpin, OUTPUT);
  pinMode(echopin, INPUT);
  pinMode(buzzer,OUTPUT);
  Serial.begin(9600);
}

void loop() {
  digitalWrite(buzzer,LOW);
  digitalWrite(trigpin, LOW);
  digitalWrite(trigpin, HIGH);
  digitalWrite(trigpin, LOW);
  duration=pulseIn(echopin, HIGH);
  distance=(duration*0.034)/2;
  if(distance<=50){
    digitalWrite(buzzer,HIGH);
    delay(5);
  }
}
```

WORKING PROCESS:

Arduino plays the major part to function the device. It decides how all the components will work according to the code. Battery supplies power to the Arduino when switch is on and Arduino distributes power to all other components. Ultrasonic sensor has two different sensors marked with R and T , where R works as receiver(input) and T is transmitter(output).Echo pin activates transmitter to create ultrasonic sound wave as input and if the sound blocked by any obstacles then sound will echo. Then receiver will receive the signal and trig pin will pass signal to the Arduino board and the code uploaded Arduino board will calculate the distance of the obstacle from the sensor. If the distance is less than or equal to 50 centimeters then the buzzer will beep.

DISCUSSION:

To complete this project we used Arduino and ultrasonic sensor for the first time. We were totally unaware of using these two devices. First of all we connected all the things by the references of YouTube but the project failed to function properly. Also we made big mistake by trying to connect the wires to the Arduino using soldering iron because we didn't know connection could be taken from the pins directly where 4 hours of our time was wasted. When we were trying to upload the code to the Arduino because of unknown reasons the uploading was fail for many times. Then after reset of Arduino finally the code was uploaded. But even after that the project was not working properly and since at first we copied the code from online we couldn't figure out what was wrong with the code. We assumed there might be something wrong with the connections so we checked all the connections but the connections were absolutely fine. So, we took the help of online to learn how to write code for Arduino and how it actually works. Then wrote the code all by ourselves and finally the device functioned as expected. The time duration was more than 20 hours in two days overall.

REFERENCES

- [1] https://www.youtube.com/watch?v=zuXmo_eJgEE
- [2] <https://www.youtube.com/watch?v=OxQcPwc8Wl0&t=465s>
- [3] <https://www.youtube.com/watch?v=5MG64i0HBg4&t=65s>
- [4] <https://www.youtube.com/watch?v=18wNMenxXfw>

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[END]