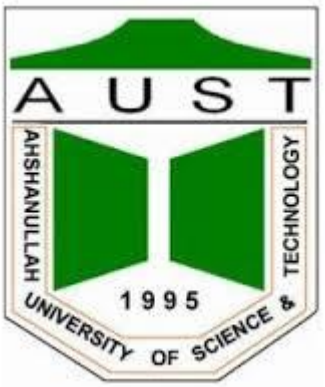
Ahsanullah University of Science & Technology

Dept. of EEE



Project report

Title: Artificial visual system for blind people using Arduino UNO,Ultrasonic sensor And Buzzer

Submitted By:

NAME:	ID:
Md.Mohiuddin Monna	13-01-05-176
Alif Fahad Chowdhury	13-01-05-187
Asadullah Muhammad Hossain Saad	13-01-05-191
Pranoy Chakraborty	13-01-05-200

Section – D

Year – 2nd Semester – 2nd

Project Coordinator : Mr.Hasib MD. Abid Bin Farid

Designation : Assistant Professor ,AUST

Equipments:

1. Arduino Uno
2. HC-SRO4 Ultrasonic Sensor
3. Buzzer
4. Resistor
5. Breadboard
6. Jumper wires
7. 9V DC Power Supply

Microcontroller:

Arduino is an open-source computer hardware and software company, project and user community that designs and manufactures kits for building digital devices and interactive objects that can sense and control the physical world.[1] Arduino boards may be purchased preassembled , or as do-it-yourself kits; at the same time, the hardware design information is available for those who would like to assemble an Arduino from scratch.

The project is based on a family of microcontroller board designs manufactured primarily by SmartProjects in Italy,[2] and also by several other vendors, using various 8-bit Atmel AVR microcontrollers or 32-bit Atmel ARM processors. These systems provide sets of digital and analog I/O pins that can be interfaced to various extension boards and other circuits. The boards feature serial communications interfaces, including USB on some models, for loading programs from personal computers. For programming the microcontrollers, the Arduino platform provides an integrated development environment (IDE) based on the Processing project, which includes support for C and C++ programming languages. Arduino is open source hardware: the Arduino hardware reference designs are distributed under a Creative Commons Attribution Share-Alike 2.5 license and are available on the Arduino Web site. Layout and production files for some versions of the Arduino hardware are also available. The source code for the IDE is available and released under the GNU General Public License, version 2.

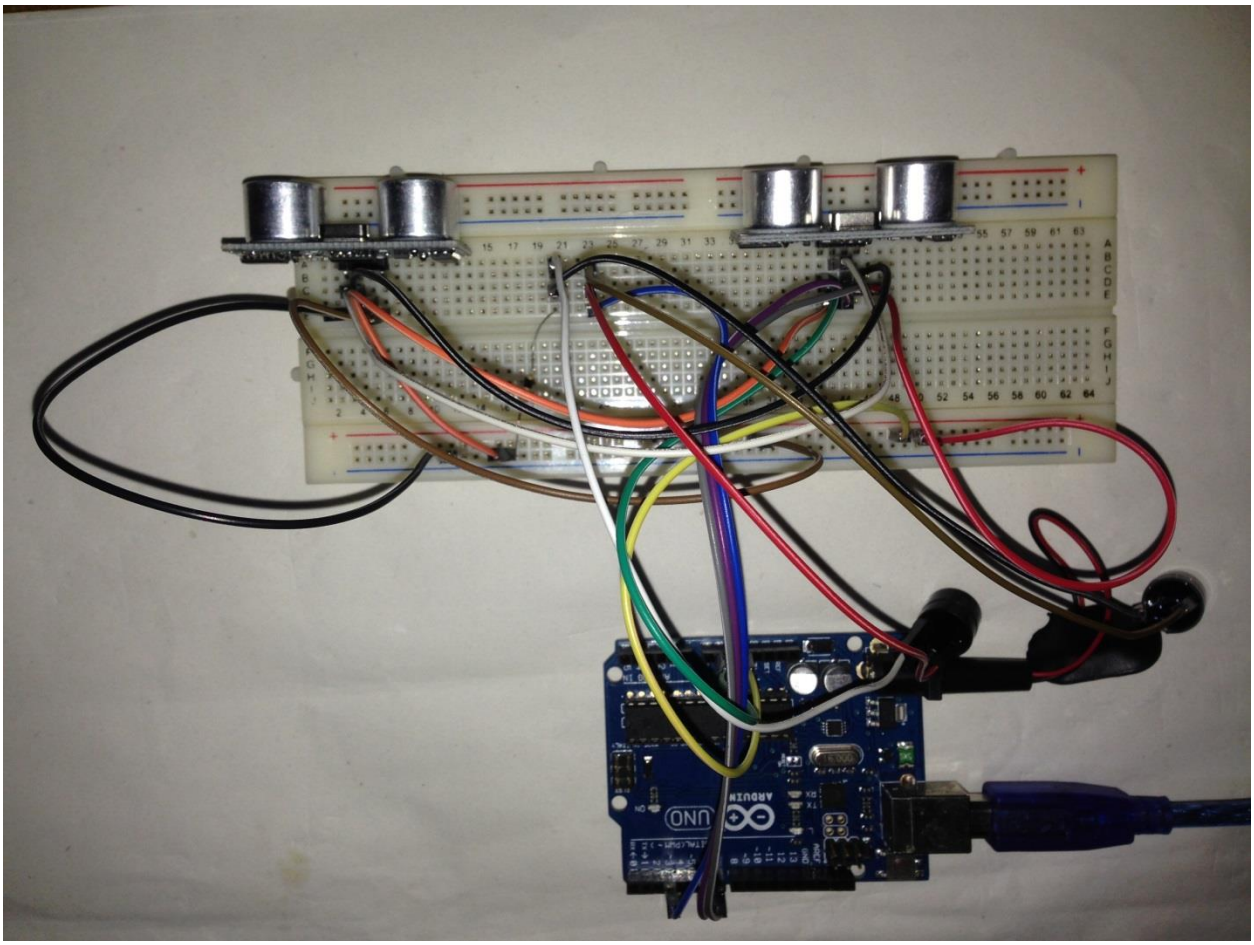
Although the hardware and software designs are freely available under copyleft licenses, the developers have requested that the name "Arduino" be exclusive to the official product and not be used for derivative works without permission. The official policy document on the use of the Arduino

name emphasizes that the project is open to incorporating work by others into the official product. Several Arduino-compatible products commercially released have avoided the "Arduino" name by using "-duino" name variants.

Working Principle:

The main work is based on the ultrasonic sensor and buzzer. If any kinds of obstacle come in the range of ultrasonic sensor then the buzzer will inform that there is obstacles in front of that blind people. here we used two hcsr-04 ultrasonic sensor which give signal from two different distance.if one obstacle is closer than second the closer one will signal loudly.

setup of the project:



We connect a jumper wire from the 5 volt pin on the Arduino to the bottom channel of the breadboard
Connect another jumper wire from a ground pin on the arduino to the upper channel of the breadboard

Buzzer -> pin 3

(On Ultrasonic Sensor)
Echo -> pin 6
Trig -> pin 7
Here we used two ultrasonic sensor which are connected parallelly with
Trig _> pin 7 and echo _> pin 6 with arduino

THE CODE:

Now that we have finished the physical setup of the build, now its time for the code. We assume that we already have the Arduino program on our computer, so now all we have to do is copy and paste the code from below.

```
#define trigPin 7
#define echoPin 6

#define buzzer 3

int sound = 250;


void setup() {
  Serial.begin (9600);
  pinMode(trigPin, OUTPUT);
  pinMode(echoPin, INPUT);
  pinMode(buzzer, OUTPUT);

}

void loop() {
  long duration, distance;
  digitalWrite(trigPin, LOW);
  delayMicroseconds(2);
  digitalWrite(trigPin, HIGH);
  delayMicroseconds(10);
  digitalWrite(trigPin, LOW);
  duration = pulseIn(echoPin, HIGH);
  distance = (duration/2) / 29.1;


  if (distance <= 30) {

    sound = 250;
}
```

```
  if (distance < 25) {

     sound = 260;
}

  if (distance < 20) {

     sound = 270;
}

  if (distance < 15) {

    sound = 280;
}

  if (distance < 10) {

    sound = 290;
}

  if (distance < 5) {

    sound = 300;
}

  if (distance > 60 || distance <= 0){
    Serial.println("Out of range");
    noTone(buzzer);
  }
  else {
    Serial.print(distance);
    Serial.println(" cm");
    tone(buzzer, sound);
```

```
  }
  delay(500);
}
```

Troubleshooting:

At first when we put the distance level at a small range,we face some problems.When we crossed the distance,we can not get the output what we want.Then we increase the distance and we overcome the problem and get our desired output.

Applications:

1. We can use it for blind people.
2. We can use it in the robots so that it can avoid any kind of obstacles.