Internet Of Things Report
Object Detection Using Motion Sensor for Blind People

1) Rationale:-

- This project is about detecting the hurdles or the objects that are coming in between the path of blind people and alerting them so that they can avoid crashing with that hurdle.

2) Aims of the Project:-

- To detect the object in the surrounding environment using Motion Sensor.

Benefits of project are:-

- It will help the blind people to avoid from crashing to the objects or hurdles around them.

3) Course Outcomes Addressed:-

- Describe Artificial Intelligence, Machine learning and deep learning.
- Interpret IoT Concepts.

4) Literature Review:-

- The use of such technology has been seen recently in the self-parking car systems launched by AUDI, FORD etc. And even the upcoming driverless cars by Google like Prius and Lexus. This setup can be used by blind people while walking in public place. The use of Arduino in this provides even more flexibility of usage of this model according to the requirements. The idea of making an ultrasonic sensor came as a part of a study carried out on the working and mechanism of “Object Detection”. Hence this time it was able to get a hold of one of the Arduino boards, Arduino UNO. So knowing about the power and vast processing capabilities of the Arduino, the idea of making it useful and a day to day application specific model that can be used at any place and by any blind people. Moreover, in this fast moving world there is an immense need for the tools that can be used for the betterment of the mankind rather than devastating their lives. Hence, from the idea of the self-driving cars came the idea of Object Detection using motion sensor. The main problem of the people in the world is safety. So, this gave up a

solution to that by making use of this project, the blind people will be alerted before he/she crashes to object/hurdle in there way.

5) Actual Methodology Followed:-

a)Finalization of Micro-Project topic.
b)Preparation of proposal.
c)Collecting information on:-

1.Arduino UNO board:

The UNO is the best board to get started with electronics and coding. The UNO is the most robust board you can start playing with. The UNO is the most used and documented board of the whole Arduino family. Arduino Uno is a microcontroller board based. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz quartz crystal, a USB connection, a power jack, an ICSP header and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started.

2.Ultrasonic Sensor:

Ultrasonic sensors measure distance by using ultrasonic waves emitted by it when it gets command from Arduino board. The sensor head emits an ultrasonic wave and receives the wave reflected back from the target. Ultrasonic Sensors measure the distance to the target by measuring the time between the emission and reception. An optical sensor has a transmitter and receiver, whereas an ultrasonic sensor uses a single ultrasonic element for both emission and reception. In a reflective model ultrasonic sensor, a single oscillator emits and receives ultrasonic waves alternately. This enables miniaturization of the sensor head.

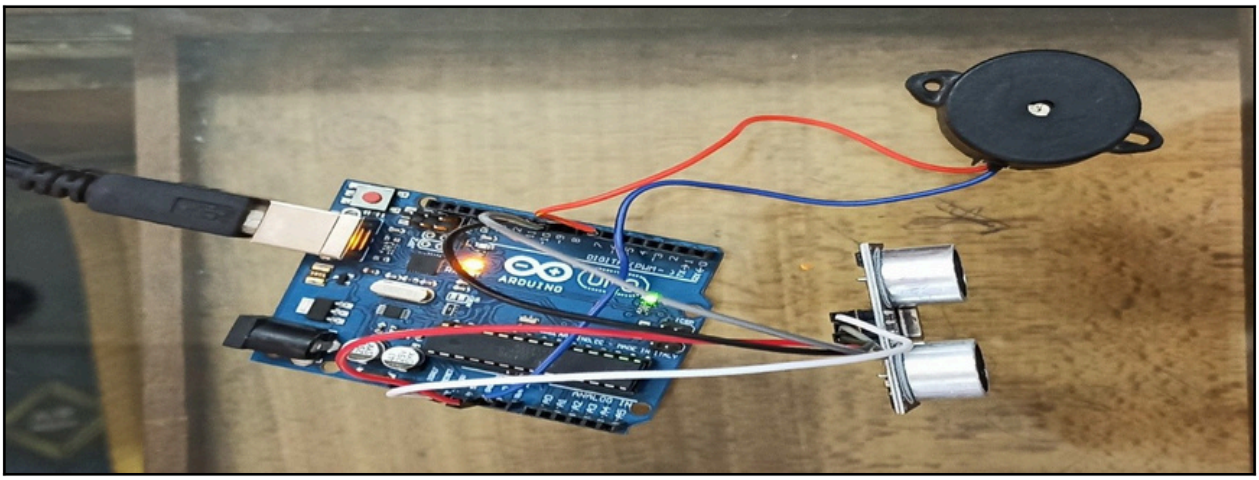
3. Buzzer:

A buzzer or beeper is an audio signaling device, which may be mechanical, electromechanical, or piezoelectric (piezo for short). Typical uses of buzzers and beepers include alarm devices, timers, and confirmation of user input such as a mouse click or keystroke.

4.Jumper Wires (Connecting wires):

Jumper wires are simply wires that have connector pins at each end, allowing them to be used to connect two points to each other without soldering. Jumper wires are typically used with breadboards and other prototyping tools in order to make it easy to change a circuit as needed.

d)Connecting sensor and buzzer to Arduino.



e)Implementing program on Arduino.

```
Const int trigPin = 9;
Const int echoPin = 10; Const int bpin = 7; long duration; int distance; void setup() void loop()
{
digitalWrite(trigPin, LOW);
delayMicroseconds(2);
digitalWrite(trigPin, HIGH);
delayMicroseconds(10);
digitalWrite(trigPin, LOW);
{
pinMode(trigPin, OUTPUT);
pinMode(echoPin, INPUT);
pinMode(7,OUTPUT);
Serial.begin(9600); }
duration = pulseIn(echoPin, HIGH);
distance= duration*0.034/2;
Serial.print("Distance: ");
Serial.println(distance);
delay(10);
if(distance<=10)
{
```

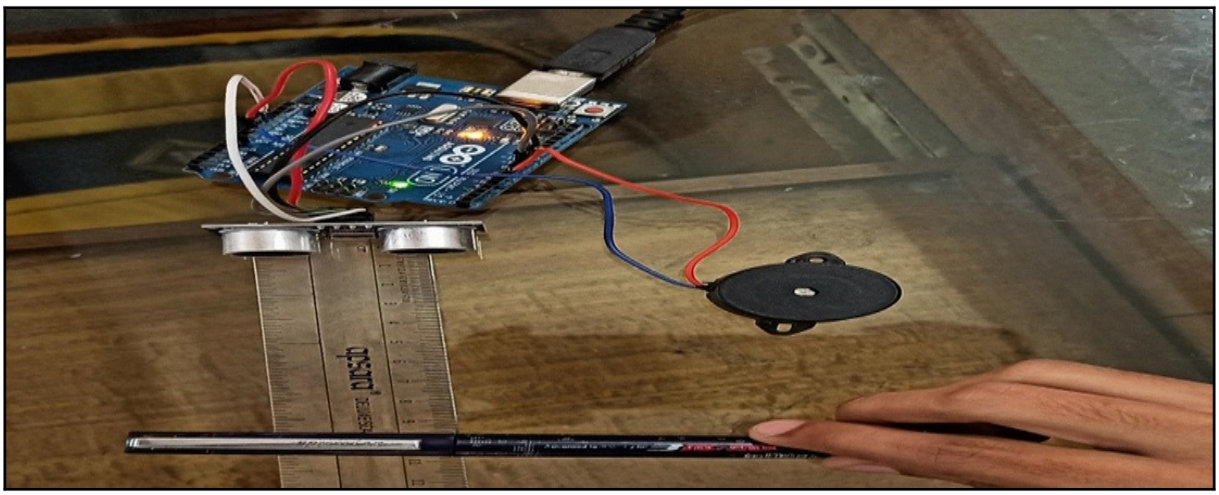
```
digitalWrite(7,HIGH);                    digitalWrite(7,LOW);

}                                        } }

else

{
```

f)Testing of sensor and buzzer after uploading code in Arduino board.



g)Preparing Micro-Project report.

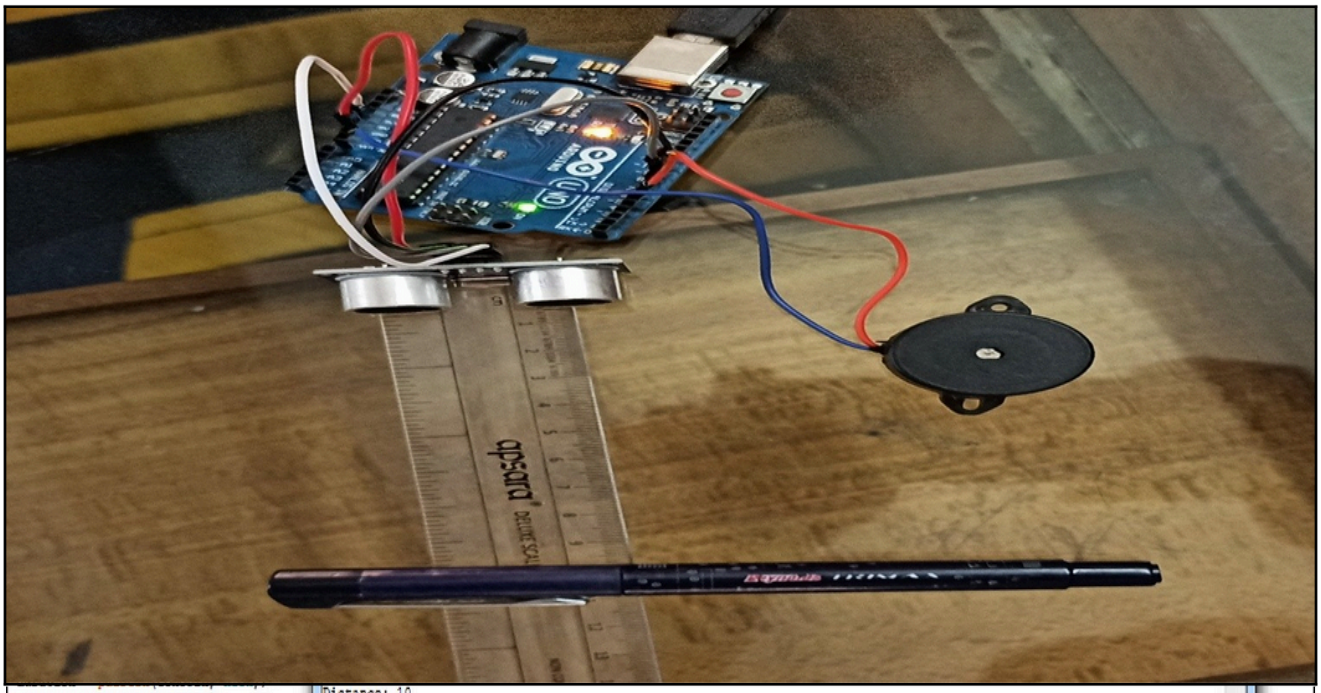
6) Actual Resources Used:-

Sr. No.	Name of Resource/material	Specifications	Qty
1)	Microsoft Word.	Any Version.	1
2)	Arduino.	Arduino UNO.	1
3)	Buzzer.	Any Type.	1
4)	Motion Sensor (Ultrasonic Sensor).	Any Type.	1

5)	Jumper Wires (Connecting Wires).	Any Type.	10
6)	TINKERCAD.	Any Version.	1
7)	Operating System.	Any Windows OS with Internet Connection.	1

7) Outputs of the Projects:-

When the distance between the object and the ultrasonic sensor will be equal to or less than 10cm then the buzzer will start making noise. Given below is the data recorded by the sensor and shown on Arduino when the object was placed on 10cm or less than that.



8) Skill Developed / Learning outcome of this Project:-

- Learned about working of arduino, ultrasonic sensor and buzzer by implementing program on it.

9) Applications of this Project:-

- It is mostly be useful for blind people so that they can walk on public place properly.
- It can also be useful for parking the car so that the car can be avoided from crashing.

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