Ex.No**:ULTRASONIC SENSOR WITH BUZZER**

Date :

AIM:

To develop the program to detect the obstacles crossing ultrasonic sensorand alarms through the buzzer using Arduino UNO R3.

COMPONENTSREQUIRED:

COMPONENTS	NOS
ARDUINOUNO	1
ULTRASONIC SENSOR	1
BUZZER	1
USB CABLE	1
BREAD BOARD	1

PROCEDURE :

Step 1: Interface the ultrasonic sensor (HC-SRC04) with breadboard through the Headerpins of ultrasonic sensor

Step 2: Connect the Ultrasonic sensor to arduino uno R3 with breadboard using jumper wires

Step 3: Connect VCC of ultrasonic sensor to 5v power pin on Arduino

Step 4: Connect TRIG of ultrasonic sensor to digital pin 9 on Arduino

Step 5: Connect ECHO of ultrasonic sensor to digital pin 10 on Arduino

Step 6: Connect GND of ultrasonic sensor to GND on Arduino

Step 7: Connect Buzzer positive pin to digital pin 13 on Arduino and another end GND to the GND on Arduino

Step 8: Open Arduino IDE and create a new sketch and type the code and compile the Program to check whether the program throws any error or not.

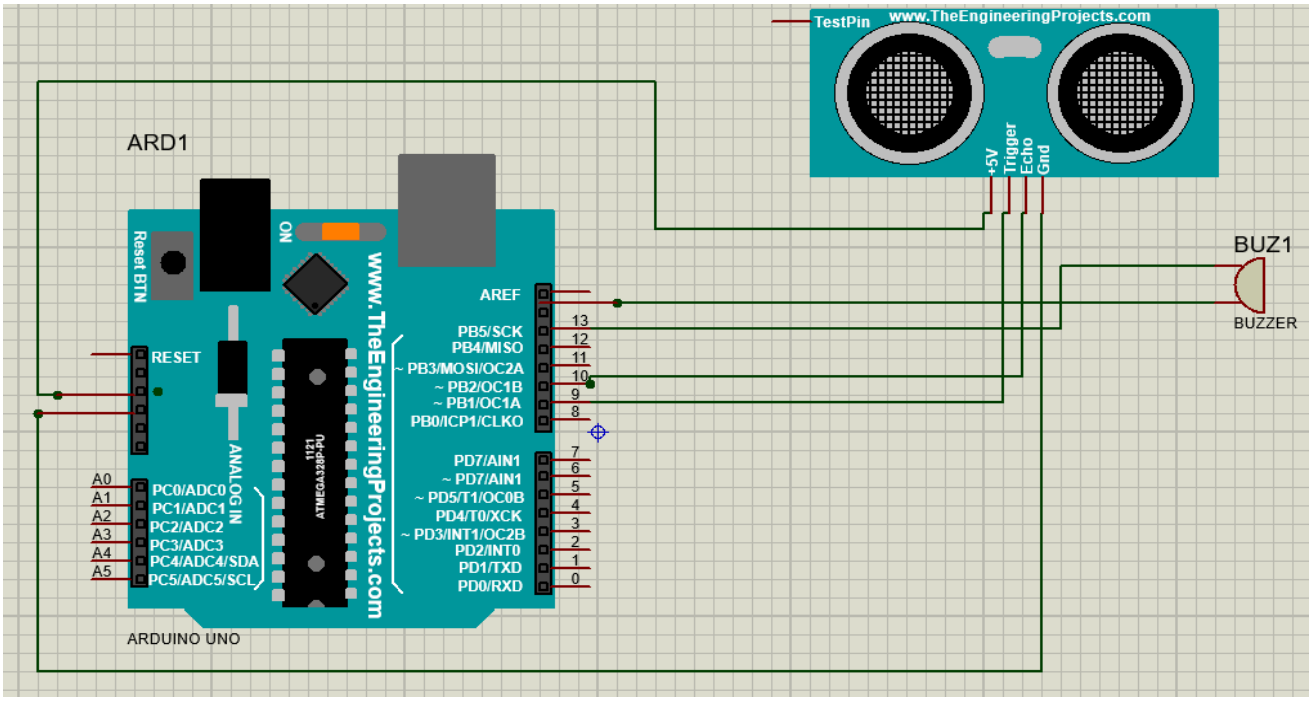
Step 9: Connect your Arduino to the computer via USB.

Step 10: Open the Arduino IDE and select your board type and COM port.

Step 11: Click on the Upload button to upload the code to your Arduino.

Step 12: Once the code is uploaded, the ultrasonic sensor can sense and detect the Obstacles that crosses it and alarms through the buzzer.

SCHEMATICDIAGRAM:

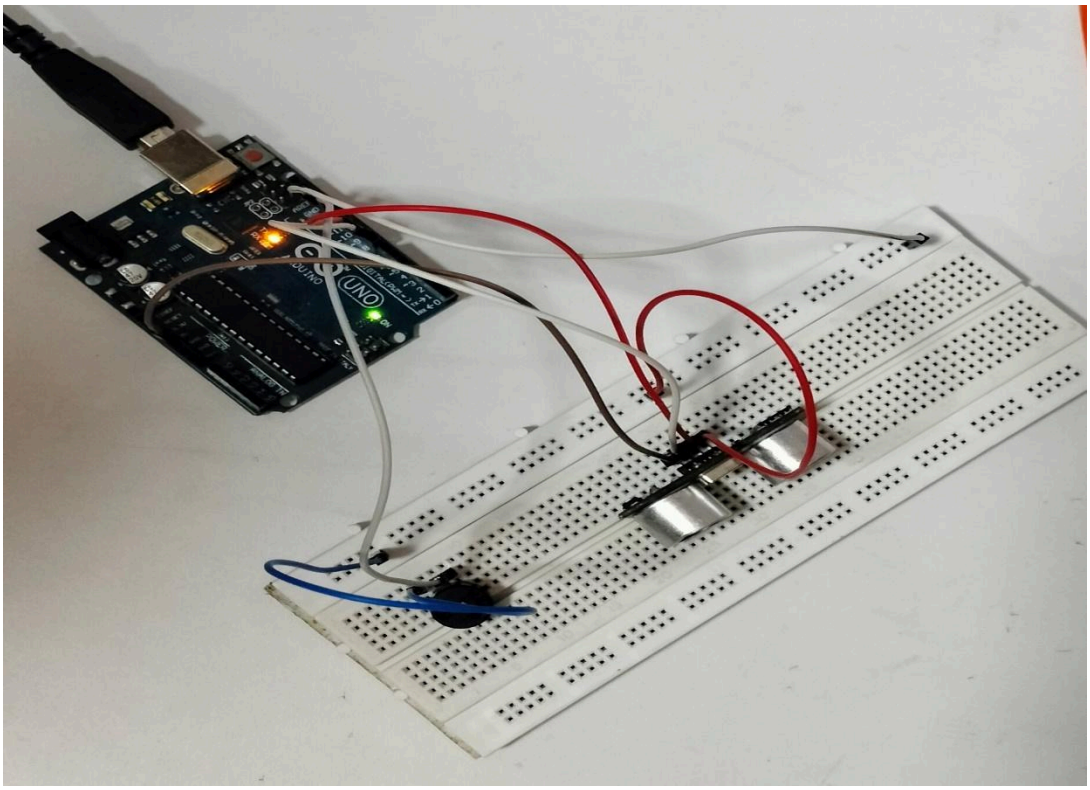


PROGRAM:

```
const int trigPin = 9;
const int echoPin = 10;
const int Motor = 11;
const int buzzer = 13;
long duration;
int distance;
int safetyDistance;

void setup()
{
pinMode(buzzer, OUTPUT);
```

```
pinMode(Motor, OUTPUT);
pinMode(trigPin, OUTPUT);
pinMode(echoPin, INPUT);
Serial.begin(9600);
}

void loop()
{
dos();
}
void dos()
{
digitalWrite(trigPin, LOW);
delayMicroseconds(2);

digitalWrite(trigPin, HIGH);
delayMicroseconds(10);
digitalWrite(trigPin, LOW);

duration = pulseIn(echoPin, HIGH);

distance = duration * 0.034 / 2;

safetyDistance = distance;
if (safetyDistance<= 5)
{
digitalWrite(buzzer, HIGH);
digitalWrite(Motor, HIGH);
}
else
{
digitalWrite(buzzer, LOW);
digitalWrite(Motor, LOW);
}

Serial.print("Distance: ");
Serial.println(distance);
}
```

OUTPUT:



RESULT:

Thus the above program to detect the obstacles crossing the ultrasonic sensor with Arduino board was executed successfully and alarmed through buzzer.