Ex.No:**ULTRASONIC SENSOR (USING LED)**

Date :

AIM:

.To develop the program to calculate the distance of object by detecting ultrasonic Distance sensor using Arduino UNO R3

COMPONENTSREQUIRED:

COMPONENTS	NOS
ARDUINOUNOR3	1
ULTRASONIC SENSOR	1
LED	1
RESISTOR	1
USB CABLE	1
BREADBOARD	1

PROCEDURE:

Step 1: Wiring the ultrasonic sensor (HC-SRC04) with breadboard using jumper wires

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

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

Step 4: Connect TRIG of ultrasonic pin to pin 10 on Arduino

Step 5: Connect ECHO of ultrasonic pin to pin 9 on Arduino

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

Step 7: Connect LED positive to the pin 11 on Arduino and another end to the resistor into the GND pin on Arduino

Step 8: Open Arduino IDE to code the Program, Upload the Code.

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 senses the object in front of Transmitter and receiver should start to sense the object and measure the distance between them according to the Instructions in the code and LED starts to blink.

SCHEMATICDIAGRAM:

PROGRAM:

```
constint trigPin = 9;
constint echoPin = 10;
constint led = 11;
long duration;
int distance;
int safetyDistance;

voidsetup()
{
pinMode(led, OUTPUT);
pinMode(trigPin, OUTPUT);
pinMode(echoPin, INPUT);
Serial.begin(9600);
}

voidloop()
{
dos();
}
voiddos()
{
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(led, HIGH);
}
else
{
digitalWrite(led, LOW);
}



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

OUTPUT:

RESULT:

Thus the Program to calculate the distance of object by detecting ultrasonic Distance sensor using Arduino UNO R3 was executed and output was verified successfully