Experiment2.1

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Section/Group: 601/ A **Semester:6th**

Subject: IOTLab **SubjectCode:20CSP-358**

1. Aim:

To measure the distance of an object using an ultra sonic sensor.

2. Components Required:

1. ArduinoUnoR3board
2. Ultra sonic sensor(HC-SR04)
3. 16×2LCDI2CDisplay
4. Jumper Wires

3. ScriptandOutput:

Arduino:

Itisanopen-sourceelectronicsplatform.ItconsistsATmega3288-bitMicrocontroller.Itcanbeabletoreadinputsfromdifferentsensors&wecansendinstructions to the micro controller in the Arduino. It provides Arduino IDE towritecode&connectthehardwaredeviceslikeArduinoboards&sensors.

UltrasonicSensor:

Ultrasonic sensors measure distance by sending and receiving the ultrasonicwave.

Setup:

1. ConnecttheEchopinofthesensortotheD2pinoftheArduino.
2. ConnecttheTrigpinofthesensortotheD3pinoftheArduino.
3. Verifyandcompilethecode,thenuploadthecodetotheArduinoUnoR3board.

MonitortheoutputintheSerialmonitor(Setthebaudrateas9600).To openSerialmonitor**Tools>SerialMonitor**or(**Ctrl+Shift+M**).

Code:

```
#defineechoPin10
#define trigPin 3long duration;intdistance;


  voidsetup(){
//putyoursetupcodehere,torun
once:pinMode(trigPin,OUTPUT);S
pinMode(echoPin,INPUT);
  Serial.begin(9600);
  Serial.println("DistancemeasurementusingArduinoUno.");
  delay(500);
  }

  void loop(){

 digitalWrite(trigPin,LOW);
 delayMicroseconds(2);

    digitalWrite(trigPin,HIGH);delayMicroseconds(10);digitalWrite(trigPin,LOW);
  duration=pulseIn(echoPin, HIGH);
  distance=duration*0.0344/2;
  Serial.print("YourDistancefromtheSensor:");
  Serial.print(distance);
  Serial.println("mm");
  delay(100);
  }
```

OUTPUT:

```
Distance = 10.00 cm
Distance = 10.00 cm
Distance = 8.00 cm
Distance = 8.00 cm
Distance = 7.00 cm
Distance = 7.00 cm
Distance = 6.00 cm
Distance = 6.00 cm
Distance = 5.00 cm
Distance = 5.00 cm
```