



Vidya-Amrut Dnyan Pratishthan's
Arts, Science & Commerce College, Shirsondi
Tal: - Malegaon, Dist.:- Nashik (423208)
(Affiliated to Savitribai Phule Pune University, Pune)



Criterion-I:

Curricular Aspects

Key Indicator 1.3:

Curriculum Enrichment

1.3.2 Percentage of students undertaking project work/field work/
internships (Data for the latest completed academic year)



ID.No. : PU / NS / ACS / 175 / 2018

Vidya-Amrut Dnyan Pratishthan Shirsondi's

Arts, Science & Commerce College, Shirsondi

Shirsondi, Tal. Malegaon, Dist. Nashik 423 208

E-mail : va.srcollege.shirsondi@gmail.com

PRINCIPAL : Dr. Rajendra B. Dhande
(M.Com., M.Phil, Ph.D.)

Date: 23/01/2024

DECLARATION

This is to declare that our college has submitted the Self-Study Report (SSR) for NAAC. After verification of SSR, NAAC raised some queries in Data verification and Validation (DVV) **Metric ID 1.3.2**. The college resolved regarding queries and resubmit the supported document for DVV.

The information, reports, true copies of the supporting documents, numerical data etc. submitted/presented in the files is verified by Internal Quality Assurance Cell (IQAC) and it is correct as per the record.

This declaration is for the purpose of NAAC accreditation of HEI for The 1st cycle period 2018-19 to 2022-23.

Date: 23/01/2024

Place: Shirsondi


IQAC Coordinator
 Arts, Science & Commerce College
 Shirsondi, Tal. Malegaon (Nashik)




Principal
 Arts, Science & Commerce College
 Shirsondi, Tal. Malegaon Dist. Nashik

Content

1.3 Curriculum Enrichment

**QnM - 1.3.2 Percentage of students undertaking project work/field work/
internships (Data for the latest completed academic year)**

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Vidya-Amrut Dnyan Pratishthan Shirsondi's,

Arts, Science and Commerce College,

Shirsondi, Tal. Malegaon, Dist. Nashik 423208

List of Students Undertaken Project/Field Work:

Sr. No.	Programme Name	Program Code	List of students undertaking project work/field work/internship
1.	B. Sc. Chemistry		Borse Avinash Ramesh
2.			Patil Swapnil Rajendra
3.			Borse Vaibhav Digambar
4.			Pawar Rushikesh Gorakh
5.			Nikam Abhijit Bharat
6.			Pawar Pooja Rajendra
7.			Salunke Jyoti Shravan
8.			More Harshali Samadhan
9.			Khairnar Rohini Vishnu
10.			Ahire Ashwini Popat
11.			Shewale Nandan Dnyaneshwar

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12.			Nikam Vishnu Nimba
13.			Bachhav Umesh Ashok
14.			Aher Harshal Bhausahab
15.			Joshi Lokesh Digambar
16.			Pawar Sakshi Krushnraj
17.			Pawar Vaishali Satish
18.			Nikam Smita Ambadas
19.			Pawar Aishwarya Vijay
20.			Deore Swati Bhausahab
21.	B. Sc. Botany		More Rahul Sanjay
22.			Pawar Prajкта Bharat
23.			Pawar Nikita Rajendra
24.			Salunke Mayur Gorakh
25.			Kedare Disha Vilas
26.			Ahire Gaurav Sudakar

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27.			Dukle Sopan Ramesh
28.			Borse Yogesh Ravindra
29.			Shewale Nikita Jibhau
30.			Nikam Gaurav Arun
31.			Salunke Mayur Gorakh
32.			Kadam Prashant Gorakh
33.			Dhingre Abhishek Manish
34.			Gangurde Dinesh Jibhau
35.			Pawar Piyush Bharat
36.			Nikam Vishal Shriram
37.			Pawar Nilesh Bhausahab
38.			Deore Pratik Sanjay
39.			Sawant Harshal Kailas
40.			Borse Sonali Ramesh
41.			Sagar Rupali Karbhari

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42.			Khairnar Aaditi Prakash
43.			Wagh Jagruti Anil
44.			Deore Swati Bhausahab
45.	UG- Electronics Science		Hiray Ashwini Vithhal
46.			Nikam Kalyani Ramdas
47.			Shewale Tejas Sahebrao
48.			Bhalerao Shubham Manoj
49.			Patil Gorakh Datta
50.			Hire Dhiraj Anil
51.			Aher Mayuri Vasant
52.			Jadhav Divesh Sanjay
53.			Jadhav Shubham Sanjay
54.			Nikam Nayan Eknath
55.			Deore Akshay Dipak
56.			Khairnar Onkar Sudhakar

Vidya-Amrut Dnyan Pratishtan Shirsondi's,

Arts, Science and Commerce College,

Shirsondi, Tal. Malegaon, Dist. Nashik 423208

57.			Bachhav Gaurav Pradip
58.			Pawar Aswini Rajendra
59.	B. Com. Banking & Finance		Ghugare Nayan Santosh
60.			Jadhav Kaushik Vijay
61.			Mulchandani Mihir Jitendra
62.			Suryawanshi Tushar Madhukar
63.			Wadhwani Sahil Harish
64.			Gaikwad Kunal Hemant
65.			Hyalij Vaishnavi Balu
66.			Bachhav Rohit Dipak
67.			Jadhav Akshay Babasaheb
68.			Borse Mayuri Ramesh
69.			Raundal Aakanksha Ravindra
70.			Pawar Jayesh Sahebrao
71.			Nikam Mayur Ravindra

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Arts, Science and Commerce College,

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72.			Bagade Sandesh Sachin
73.			Dasnor Kalpesh Bapu
74.			Kale Pawan Sunil
75.			Pawar Abhijit Vijay
76.			Hajare rutik vijay
77.			Sangale Narendra Dilip
78.			Suryawanshi Rushikesh Shivaji
79.	B. Com. Cost & Works Accounting		Shinde Mayur Vijay
80.			Kulkarni Vedant Krushnaji
81.			Pawar Vishal Subhash
82.	B. A. Hindi		Kumavat Jayprakash Gopalram



Bhonde
PRINCIPAL
Arts, Science & Commerce College
Shirsondi Tal. Malegaon (Nashik)

CERTIFICATE OF ACCREDITATION

This internship program certificate is proudly
awarded to

NIKAM VISHNU NIMBA

This is to hereby certify that the above student from "Vidya Amrut Dnyan Pratishtan's
Arts, science and Commerce College Shirsondi – 423208, Tal- Malegaon, Dist. –Nashik, MH"
has successfully accomplished the internship to ten days from 02/10/2021 to 13/10/2021

With "**Dhanashri Fabrics**" and Obtained Theoretical and Practical

They Learn to know and assist in the production process of fabric,

From the raw material to final finished products.

They learn many techniques in production like spinning, weaving, finishing and apparel –making

They learn how to package products attractively for marketing



Principal

Dr. R. B. Dhande

For DHANSHREE FABRICS



PROPRIETOR

PROPRITOR

DHANASHRI FABRICS



Jay Babaji Trading Company

At post Mungse Onion Market (Malegaon) 423201

Certificate of Accreditation

This is to hereby certify that the following students from Vidya Amrut DnyanPratishthan's Arts, Science & Commerce College Shirsondi-423208 Tal:- Malegaon, Dist.:- Nashik, Maharashtra has successfully accomplished the internship of Ten days from 04-08-2022 to 15-08-2022 With (**Jay Babaji Trading company Mungse**)

Obtained Theoretical and Practical Knowledge they learn to know about onion purchase process, Onion shorting & grading, How to store in wire baskets, they learn how to packed onion container, they learn all information in onion storage.

Borse Sonali Ramesh

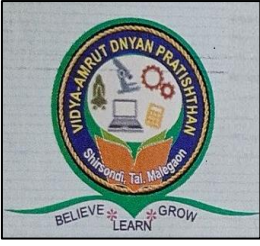
Jay Babaji Trading Company

Proprietor

IQAC Coordinator
Arts, Science & Commerce College
Shirsondi, Tal. Malegaon (Nashik)



Principal
Arts, Science & Commerce College
Shirsondi, Tal. Malegaon Dist. Nashik



Vidya-Amrut Dnyan Pratishtan's
Arts, Science & Commerce College, Shirsondi.
Tal: - Malegaon, Dist: - Nashik 423208.
(Affiliated to Savitribai Phule Pune University, Pune)



“OBSTACLE SENSING USING ULTRASONIC SENSOR WITH ARDUINO UNO”

A Project Report Submitted to the
SAVITRIBAI PHULE PUNE UNIVERSITY
In partial fulfillment of the course leading
To
BACHELOR OF SCIENCE
By
MR.DHIRAJ ANIL HIRE

ROLL NO: - 68

EXAM SEAT NO: 22120

UNDER THE GUIDENCE OF

Dr. Umesh J. Tupe

Vidya-Amrut Dnyan Pratishtan's
Arts, Science & Commerce College, Shirsondi.
Tal: - Malegaon, Dist: - Nashik 423208.



Vidya-Amrut Dnyan Pratishtan's
Arts, Science & Commerce College, Shirsondi.
Tal: - Malegaon, Dist: - Nashik 423208.

Department of Electronics Science

CERTIFICATE

This is certify that the project report entitled,
“Obstacle Sensing Using Ultrasonic Sensor with Arduino”
Has been satisfactorily completed by,

MR.DHIRAJ ANIL HIRE

As partial Fulfilment of requirement for the Degree Examination of B. Sc in Electronics Science is a record of bonafied work carried out by him under my supervision and guidance during year 2022-2023 [Term-I, Sem- V] of Savitribai Phule Pune University.


(Project Guide)


(Head of Department)
Dept. of Electronic Sci.
A.C.C.


Internal Examiner


Internal Examiner

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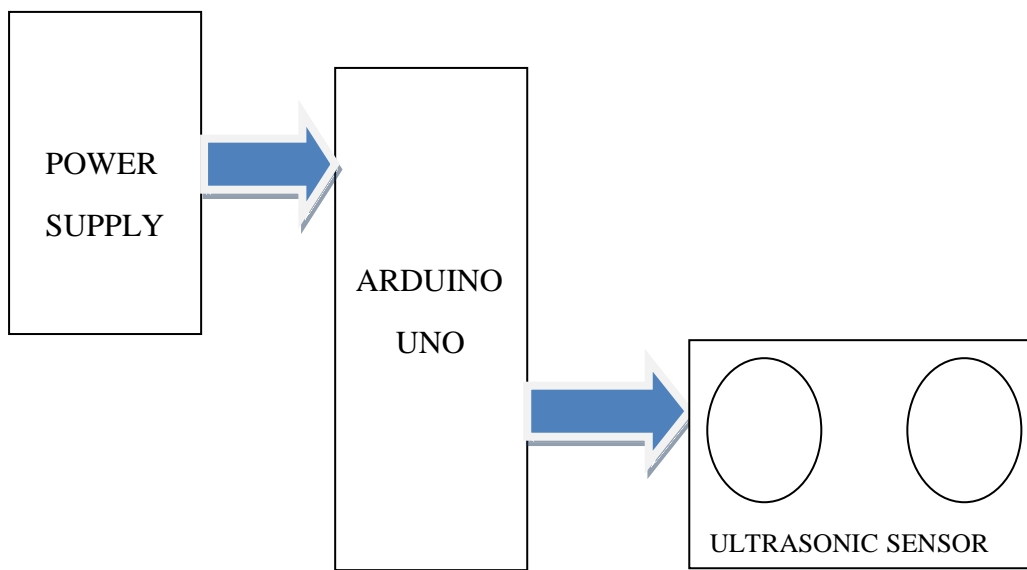
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INTRODUCTION:

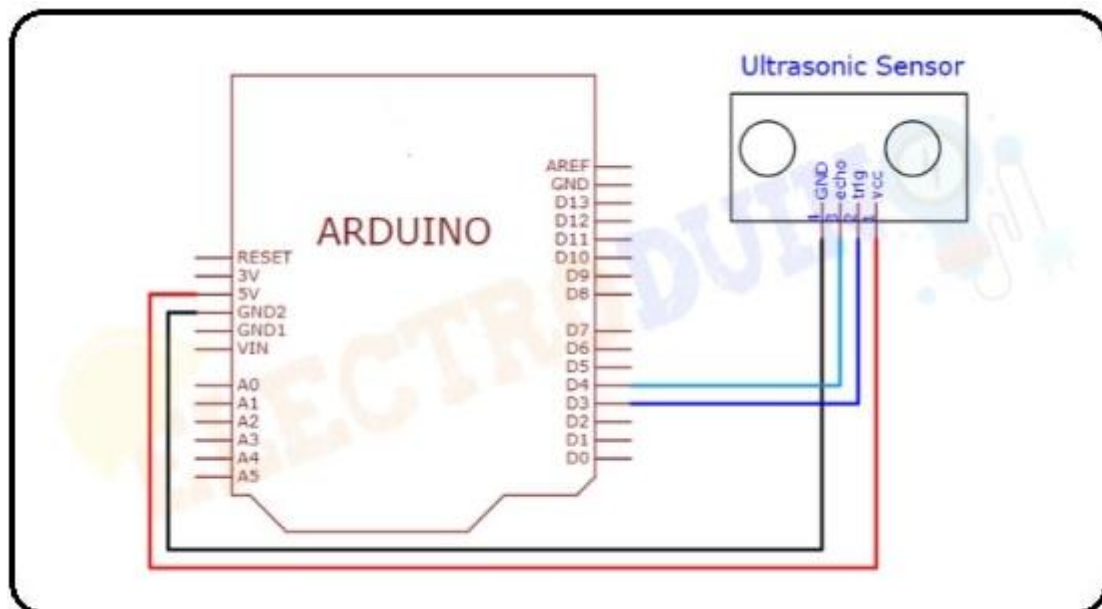
This project uses an Arduino Uno board to control the whole circuitry. The ultrasonic sensor will be its input and also the triggering device and the led too. Once there is an obstacle in front of the sensor it will immediately send the data to the Arduino board which will then activate the piezoelectric buzzer to sound its alarm as well as the led will be turned on to notify the user that there is an obstacle. This project can be used for vehicles, especially the big trucks, this will notify the driver when something is behind the truck thus avoiding any accidents.

The same programming can also be used in the Robot for detecting any Obstacle, or it can be used in a security project, or the same idea can also be used in making the touch-less doorbell system.

BLOCK DIAGRAM:



CIRCUIT DIAGRAM:



CIRCUIT DIAGRAM OF ARDUINO UNO WITH ULTRASONIC SENSOR

CIRCUIT WORKING:

The HC-SR04 is an affordable and easy to use distance measuring sensor which has a range from 2cm to 400cm (about an inch to 13 feet).

The sensor is composed of two ultrasonic transducers. One is transmitter which outputs ultrasonic sound pulses and the other is receiver which listens for reflected waves. It's basically a [SONAR](#) which is used in submarines for detecting underwater objects.

SPECIFICATIONS OF THE SENSOR:

Operating Voltage	5V DC
Operating Current	15mA
Operating Frequency	40KHz
Min Range	2cm / 1 inch
Max Range	400cm / 13 feet
Accuracy	3mm
Measuring Angle	<15°

Dimension	45 x 20 x 15mm
-----------	----------------

The sensor has 4 pins. **VCC** and **GND** go to **5V** and **GND** pins on the Arduino, and the **Trig** and **Echo** go to any digital Arduino pin. Using the **Trig** pin we send the ultrasound wave from the transmitter, and with the **Echo** pin we listen for the reflected signal.

CIRCUIT WORKING:

It emits an ultrasound at 40 000 Hz which travels through the air and if there is an object or obstacle on its path It will bounce back to the module. Considering the travel time and the speed of the sound you can calculate the distance.

In order to generate the ultrasound we need to set the Trig pin on a High State for 10 μ s. That will send out an 8 cycle ultrasonic burst which will travel at the [speed of sound](#). The Echo pins goes high right away after that 8 cycle ultrasonic burst is sent, and it starts listening or waiting for that wave to be reflected from an object.

If we receive a reflected pulse, the Echo pin will go down sooner than those 38ms. According to the amount of time the Echo pin was HIGH, we can determine the distance the sound wave traveled, thus the distance from the sensor to the object.

CONNECTION OF ULTRASONIC SENSOR TO THE ARDUINO UNO:

The Ground and the VCC pins of the module needs to be connected to the Ground and the 5 volts pins on the Arduino Board respectively and the trig and echo pins to any Digital I/O pin on the Arduino Board.

LIST OF COMPONENTS:

1. ARDUINO UNO BOARD.

2. ULTRASONIC SENSOR.

3. DC JACK

4. RESISTERS

5. WIRES

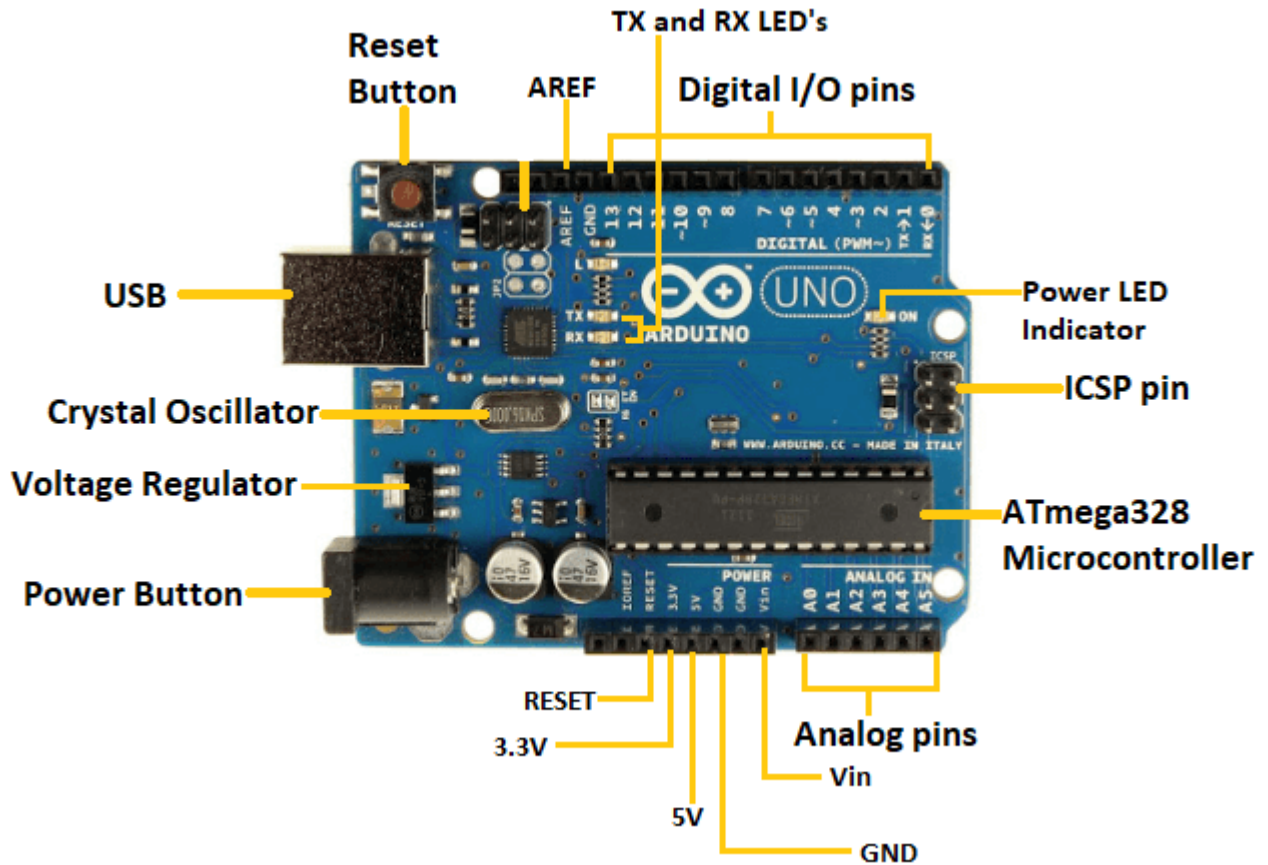
6. LED

7. BUZZER

8. 9 V BATTERY

USED COMPONENTS:

1. ARDUINO:



The Arduino UNO is a standard board of Arduino. Here UNO means 'one' in Italian. It was named as UNO to label the first release of Arduino Software. It was also the first USB board released by Arduino. It is considered as the powerful board used in various projects. Arduino.cc developed the Arduino UNO board.

Arduino UNO is based on an ATmega328P [microcontroller](#). It is easy to use compared to other boards, such as the Arduino Mega board, etc. The board consists of digital and analog Input/Output pins (I/O), shields, and other circuits.

The Arduino UNO includes 6 analog pin inputs, 14 digital pins, a [USB](#) connector, a power jack, and an ICSP (In-Circuit Serial Programming) header. It is programmed based on IDE, which stands for Integrated Development Environment. It can run on both online and offline platforms.

The [IDE](#) is common to all available boards of Arduino.

2. ULTRASONIC SENSOR

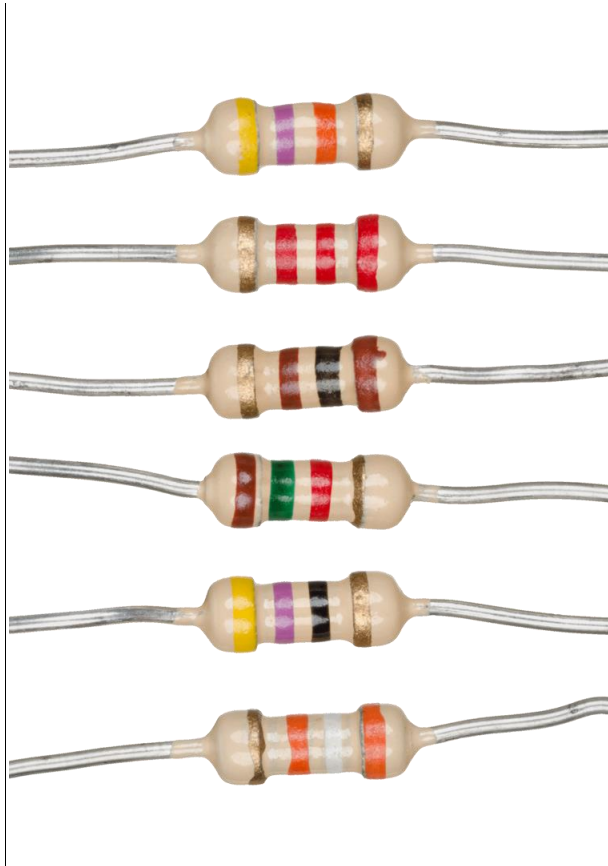
Ultrasonic sensors are used primarily as [proximity sensors](#). They can be found in automobile self-parking technology and anti-collision safety systems. Ultrasonic sensors are also used in robotic obstacle detection systems, as well as manufacturing technology. [In comparison to infrared \(IR\) sensors](#) in proximity sensing applications, ultrasonic sensors are not as susceptible to interference of smoke, gas and other airborne particles (though the physical components are still affected by variables such as heat).

Ultrasonic sensors are also used as [level sensors](#) to detect, monitor, and regulate liquid levels in closed containers (such as vats in chemical factories). Most notably, ultrasonic technology has enabled the medical industry to produce images of internal organs, identify tumors, and ensure the health of babies in the womb.



RESISTORS:

A **resistor** is a [passive two-terminal electrical component](#) that implements [electrical resistance](#) as a circuit element. In electronic circuits, resistors are used to reduce current flow, adjust signal levels, to [divide voltages](#), [bias](#) active elements, and terminate [transmission lines](#), among other uses. High-power resistors that can dissipate many [watts](#) of electrical power as heat may be used as part of motor controls, in power distribution systems, or as test loads for [generators](#). Fixed resistors have resistances that only change slightly with temperature, time or operating voltage. Variable resistors can be used to adjust circuit elements (such as a volume control or a lamp dimmer), or as sensing devices for heat, light, humidity, force, or chemical activity.



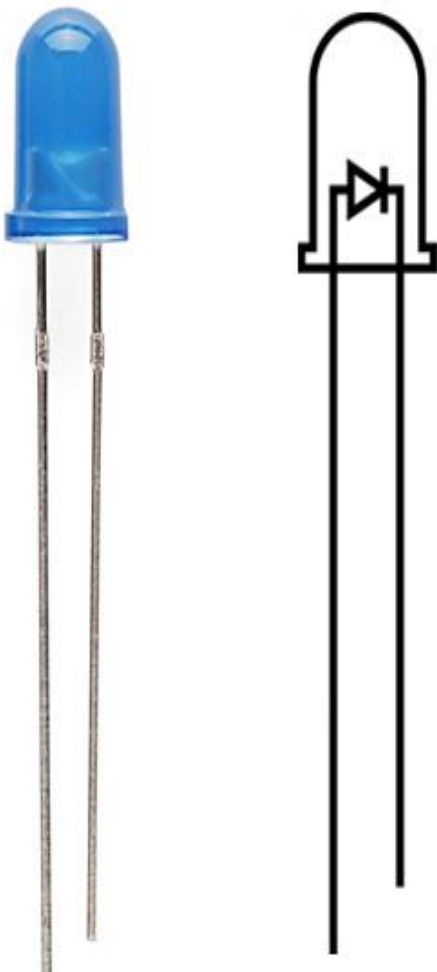
BUZZER:

A **buzzer** or **beeper** is an [audio](#) signaling device,^[1] which may be [mechanical](#), [electromechanical](#), or [piezoelectric](#) (*piezo* for short). Typical uses of buzzers and beepers include [alarm devices](#), [timers](#), [train](#) and confirmation of user input such as a mouse click or keystroke.



LED:

A **light-emitting diode (LED)** is a **semiconductor device** that **emits light** when **current** flows through it. **Electrons** in the semiconductor recombine with **electron holes**, releasing energy in the form of **photons**. The color of the light (corresponding to the energy of the photons) is determined by the energy required for electrons to cross the **band gap** of the semiconductor.^[6] White light is obtained by using multiple semiconductors or a layer of light-emitting **phosphor** on the semiconductor device.



ADVANTAGES:

Ultrasonic sensors are a great fit for many applications

These are a few ultrasonic sensor advantages that help clarify what applications our sensors are suited for.

1. Not affected by color or transparency of objects

Ultrasonic sensors reflect sound off of objects, so the color or transparency have no effect on the sensor's reading.

2. Can be used in dark environments

Unlike proximity sensors using light or cameras, dark environments have no effect on an ultrasonic sensor's detection ability

3. Not highly affected by dust, dirt, or high-moisture environments

Although our sensors work well in these environments, they can still give incorrect readings with a heavy build-up of dirt or water, especially in extreme conditions. However, our SCXL-MaxSonar-WR line is self-cleaning and can help decrease the effects of things like condensation.

- Their small size makes it easy to integrate into projects
- Ultrasonics can easily integrate with any type of controller
- Their high frequency, sensitivity, and power make it easy to detect objects
- They have greater accuracy than many other methods at measuring thickness and depth of a parallel surface
- Ultrasonics are easy to use and not dangerous during operation
- An inexpensive option

APPLICATION:

- 1. OBSTACLE AVOIDING CAR/ ROBOT**
- 2. DISTANCE MEASURING DEVICE**
- 3. SECURITY AND ALARM SYSTEM**
- 4. LIQUID LEVEL SENSING**
- 5. AUTOMATIC TRASH BIN**
- 6. BOTTEL COUNTING ON DRINK FILLING MACHINE**

PROGRAM / CODE :

```
// Define pins for ultrasonic and buzzer

IntconsttrigPin = 10;
IntconstechoPin = 9;
IntconstbuzzPin = 2;
IntconstLEDPin = 3;

Void setup()
{
pinMode(trigPin, OUTPUT); // trig pin will have pulses output
pinMode(echoPin, INPUT); // echo pin should be input to get pulse width
pinMode(buzzPin, OUTPUT); // buzz pin is output to control buzzing
pinMode(LEDPin, OUTPUT); // LED pin is output to ON/OFF LED
}

Void loop()
{
// Duration will be the input pulse width and distance will be the distance to the obstacle in
centimeters

Int duration, distance;

// Output pulse with 1ms width on trigPin
digitalWrite(trigPin, HIGH);
delay(1);
digitalWrite(trigPin, LOW);

// Measure the pulse input in echo pin
Duration = pulseIn(echoPin, HIGH);

// Distance is half the duration divided by 29.1 (from datasheet)
Distance = (duration/2) / 29.1;

// if distance less than 0.5 meter and more than 0 (0 or less means over range)
If (distance <= 50 && distance >= 0) {

// Buzz
```

```
digitalWrite(buzzPin, HIGH);  
digitalWrite(LEDPin, HIGH);  
} else {  
// Don't buzz  
digitalWrite(buzzPin, LOW);  
digitalWrite(LEDPin, LOW);  
}  
// Waiting 60 ms won't hurt any one  
Delay(60);  
}
```

Conclusion

So, we have covered pretty much everything that we need to know about using the HC-SR04 Ultrasonic sensor with Arduino. It's a great sensor for many DIY electronics projects where we need a non-contact distance measuring, detection of presence or objects, level or position something etc.

Reference:

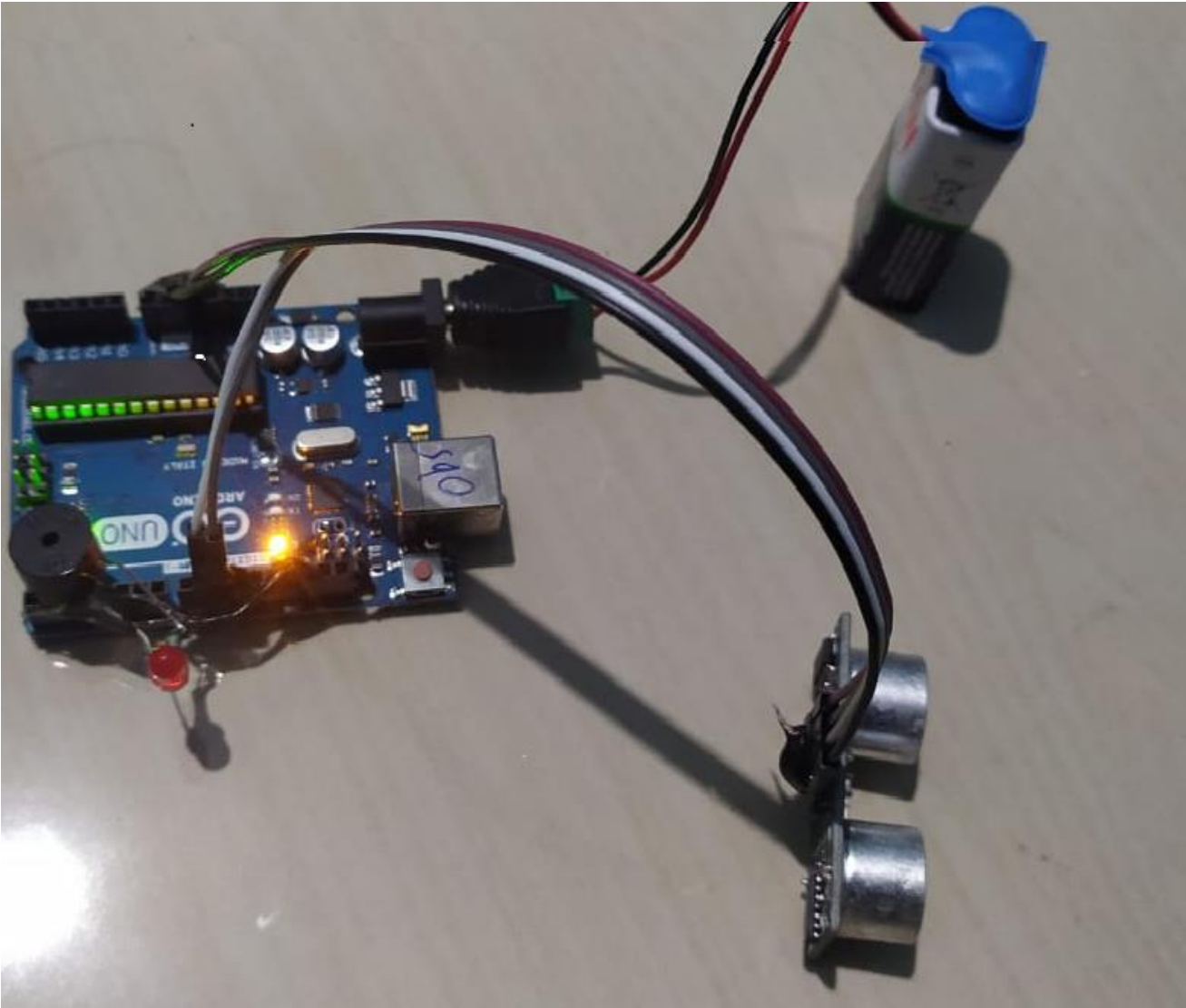
howtomechatronics.com

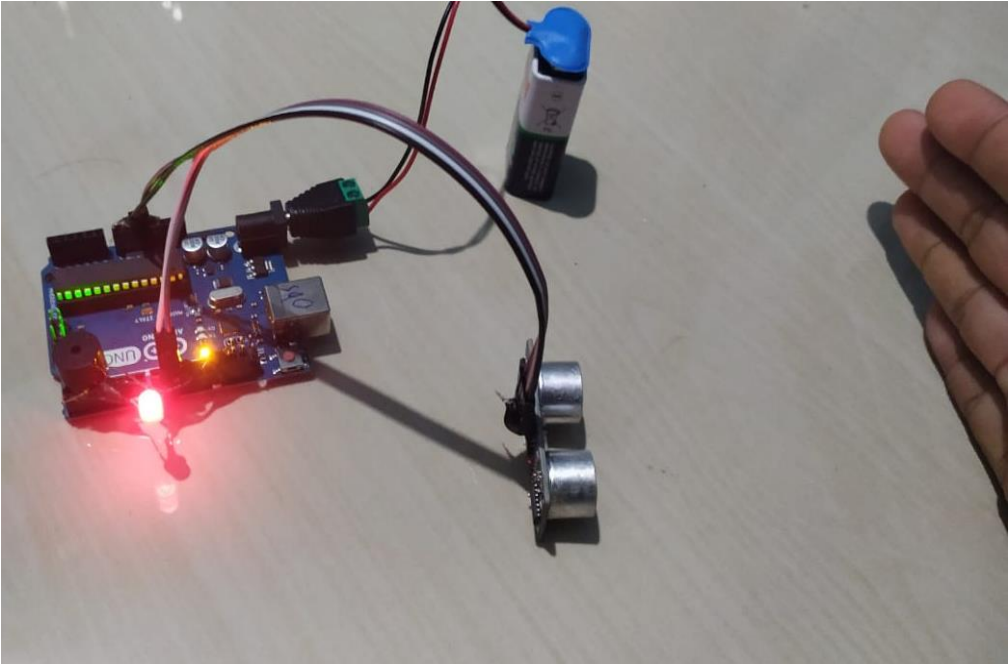
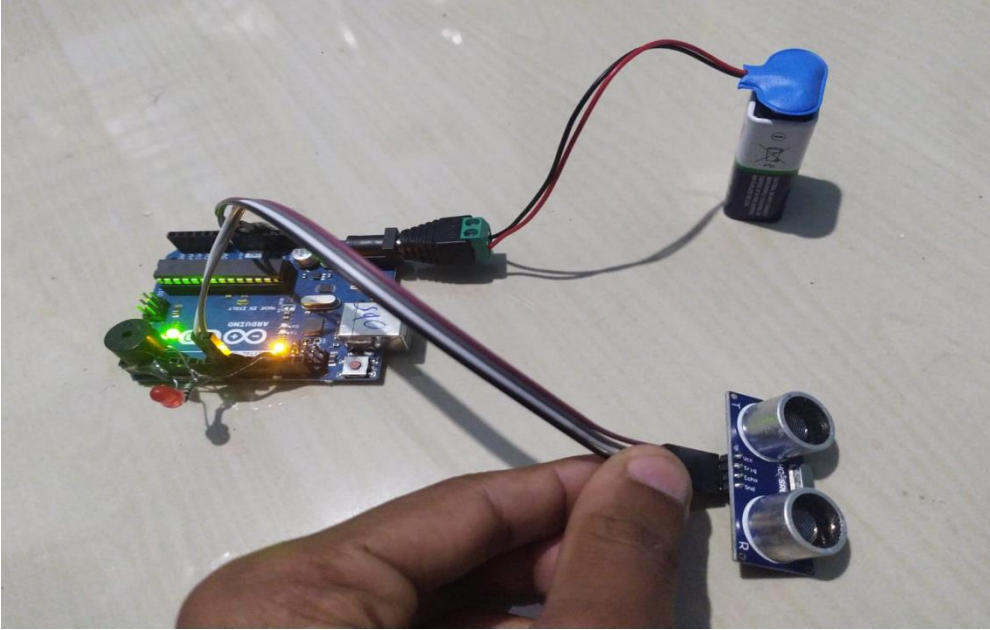
CIRCUITDIGEST.COM

LEARNINGABOUTELECTRONICS.COM

PRACTICAL ELECTRONICS FOR INVENTORS BY Dr. MONK

“OBSTACLE SENSING USING ULTRASONIC SENSOR WITH ARDUINO UNO”





Balaji Plastic Industries

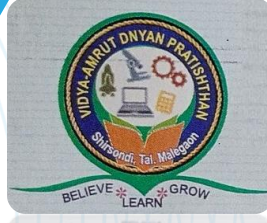
Factory No. 397/A, Plot No. 30, Manmad Road, Chandanpuri Shivar, Malegaon, Dist. Nashik (M.S.)
Reg. Office: Mumbai Chambers, B-Wing, 14th Floor, Link Road, Opp. City Centre Mall,
Anbdheri West, Mumbai. 40005

CERTIFICATE

This is to hereby certify that the following students from Department of Commerce Vidya Amrut Dnyan Pratishthan's Arts, Science & Commerce College, Shirsondi Tal. Malegaon. Dist. Nashik, Maharashtra, Pin code- 423208 has successfully accomplished the **Internship Program and Project Work** in the **Academic Year 2022-2023** at Balaji Plastic Industries, Malegaon. Address: Factory No. 397/A, Plot No. 30, Manmad Road, Chandanpuri Shivar, Malegaon. Dist. Nashik.

Sr. No.	Roll No.	Name	Mobile No.
1	1	GHODKE MAYURESH YOGESH	7410100813
2	2	SHAIKH MOINUDDIN YUNUS	8087995293
3	3	BORSE MAYURI RAMESH	9172124192
4	4	GAIKWAD KUNAL HEMANT	9423378007
5	5	SURYAWANSHI RUSHIKESH SHIVAJI	9370748739
6	6	HAJARE RUTIK VIJAY	9028302652
7	7	BAGADE SANDESH SACHIN	9373241005
8	8	GHUGRE NAYAN SANTOSH	8999234499
9	9	MULCHANDANI MIHIR JITENDRA	7588709891
10	10	JADHAV KAUSHIK VIJAY	7038129630
11	11	RAUNDAL AKANKSHA RAVINDRA	9579895288
12	12	DASNOR KALPESH BAPU	7057579767
13	13	SURYAWANSHI TUSHAR MADHUKAR	7083826585
14	14	SANGALE NARENDA DILIP	7350082405
15	15	SHINDE MAYUR VIJAY	7057049835
16	16	PAWAR VISHAL SUBHASH	9834795639
17	17	JADHAV AKSHAY BABASAHEB	9112814128
18	18	HYALIJ VAISHNAVI BALU	9156509141
19	19	KALE PAVAN SUNIL	9527861659
20	20	THORAT ARCHANA GOKUL	9096840943
21	21	PAWAR JAYESH SAHEBRAO	8459452300
22	22	KULKARNI VEDANT KRUSHNAJI	9172925935
23	23	WADHWANI SAHIL HARISH	9422846689
24	24	NIKAM MAYUR RAVINDRA	9561638663
25	25	PAWAR ABHIJIT VIJAY	7744803894
26	26	AHIRRAO BHUSHAN RAJENDRA	7038102833
27	28	BACHHAV ROHIT DIPAK	8975249612





विद्या अमृत ज्ञान प्रतिष्ठान संचालित,

कला, विज्ञान एवं वाणिज्य महाविद्यालय,
शिरसोंडी, तह. मालेगाव, जि. नाशिक 423208

प्रमाणपत्र

यह प्रमाणित किया जाता है कि,

कुमावत जयप्रकाश गोपालराम

तृतीय वर्ष कला (T.Y.B.A.) के छात्र है। इन्होंने महाविद्यालय द्वारा आयोजित हिंदी प्रमाणपत्र कोर्स का विषय "अनुवाद" को सफलतापूर्वक शैक्षणिक वर्ष 2022-23 में पूर्ण किया। इन्होंने नियमित मेहनत और ईमानदारी से इस प्रमाणपत्र कोर्स को पुरा किया है इसीलिए यह प्रमाणपत्र प्रदान किया जाता है।

हिंदी विभाग प्रमुख

प्रधानाचार्य