Class: Roll No:

Experiment No:5

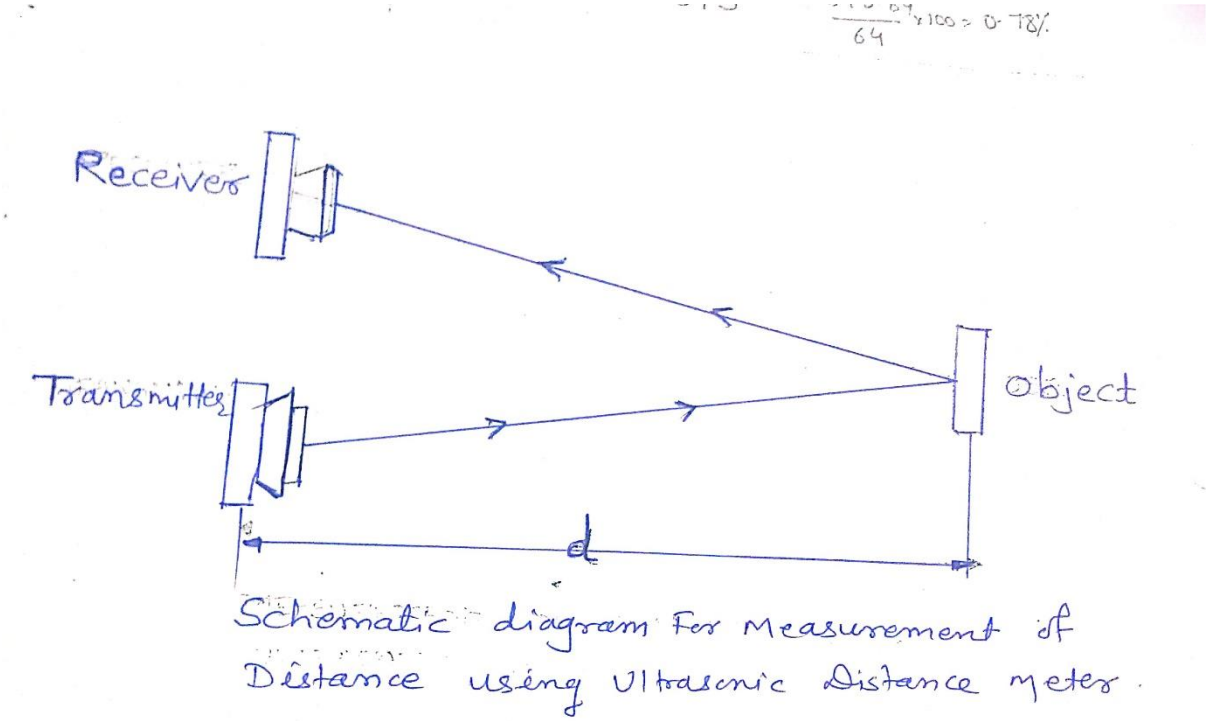
Determination of distance of a given object from a specified point using Ultrasonic Distance Meter.

Date Of Preparation:

Date of Submission:

Signature of Teacher:

Diagram:




Schematic diagram For Measurement of Distance using Ultrasonic Distance meter.

## EXPERIMENT NO. 5

**Aim**: To determine the distance of an object using Ultrasonic Distance meter.

**Equipments**: Ultrasonic Distance meter Kit, Measuring Tape, Object (where distance is to be measured.

**Theory**: Ultrasonic beams can be produced in the form of directed beams like beams of light. Further, they travel quite a large distance and are unidirectional. While travelling, whenever ultrasonic waves encounter an obstacle, they reflect back. As a result, they are used to measure distances. The source sends out short pulses of ultrasonic waves and the receiver receives the reflected waves. The distance can be calculated using the Formula $\mathbf{2d = \mathcal{V} X t}$
Where, d = distance between transmitter and the object
$\mathcal{V}$= velocity of ultrasonic wave in air
t= time lag between sending and receiving back the signal

**Observation Table**:

| Sr.No | Measured Distance d (inches) | Observed Distance 2d (inches) | Calculated Distance d (inches) | Percentage Error % | Average Percentage Error % |
|---|---|---|---|---|---|
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | | | | |