

### Program:

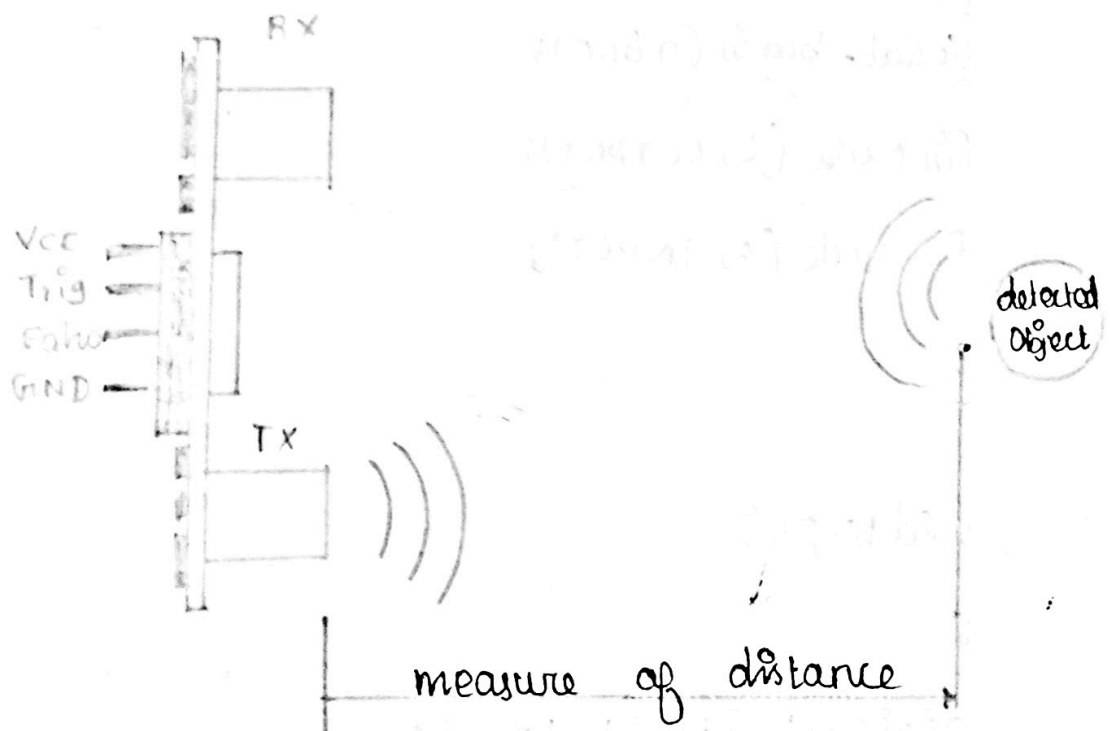
- 1) // C++ Code
- 2) //
- 3) void setup()
- 4) {
- 5) Serial.begin(9600);
- 6) pinMode(3, OUTPUT);
- 7) }
- 8)
- 9) void loop()
- 10) {
- 11) int value = analogRead(A0);
- 12) Serial.print("value = ");

- 13) Serial.print (value);
- 14) int Con\_value = map (value, 0, 1023, 0, 255);
- 15) Serial.print (" Con\_value = ");
- 16) Serial.print (Con\_value);
- 17) analogWrite (3, Con\_value);
- 18)
- 19) delay (500);
- 20) }.

### ultrasonic sensor working:

→ Considering the travel time and the speed of the sound you can calculate the distance.

$$\text{Distance} = (\text{Duration} / 2) * \text{velocity of Sound} \\ (340 \text{ m/s}).$$



## Ultrasonic Sensor Specifications :

Operating Voltage : DC 5V

Operating Current : 15mA

Operating frequency : 40KHz

Max Range : 4cm

Min Range : 2cm

Ranging Accuracy : 3mm

Measuring angle : 15 degree

Trigger input signal : 10µs TTL Pulse

Dimension : 45 x 20 x 15 mm

## Ultrasonic Sensor Code :

```
int t = 2;
```

```
int e = 3;
```

```
void setup()
```

```
{
```

```
  Serial.begin(9600);
```

```
  pinMode(t, OUTPUT);
```

```
  pinMode(e, INPUT);
```

```
}
```

```
void loop()
```

```
{
```

```
  digitalWrite(t, LOW);
```

digitalWrite (t, HIGH);

delayMicroseconds (10);

digitalWrite (t, LOW);

float dur = pulseIn (e, HIGH);

float dis = (dur \* 0.0343/2);

Serial.print ("Distance in cm:");

Serial.println (dis);

}

### PIR Sensor Intro:

→ PIR Sensors allow you to sense motion almost always used to detect whether a human has moved in (or) out of the sensors range.

→ They are small, inexpensive, low-power easy to use and don't wear out. For that reason they are commonly found in applications and gadgets used in homes (or) businesses.

→ They are often referred to as PIR, "Passive Infrared", "Pyroelectric", or "IR Motion" Sensors.

## PIR Sensor Working:

→ The Pyro-electric Infra-Red (PIR) Sensor is an extremely useful device for detecting the presence of a moving body.

→ PIR is simply sensitive to the infrared energy emitted by every living things.

→ When an intruder walks into the detector's field of vision, The detector "sees" a sharp increase in infrared energy.

