

## ASSIGNMENT NO. 1

**Aim:** Design and implement IoT system using Arduino Uno/ Raspberry Pi using 'Ultrasonic sensor and Servo motor' such as 'Door opener in home automation'.

**Code:**

```
#include <Servo.h>

Servo doorServo;

const int trigPin = 9;
const int echoPin = 10;
const int servoPin = 6;

long duration;
int distance;

void setup() {
    doorServo.attach(servoPin);
    pinMode(trigPin, OUTPUT);
    pinMode(echoPin, INPUT);
    Serial.begin(9600);
    doorServo.write(0); // Door initially closed
}

void loop() {
    // Send ultrasonic pulse
    digitalWrite(trigPin, LOW);
    delayMicroseconds(2);
    digitalWrite(trigPin, HIGH);
```

```
delayMicroseconds(10);

digitalWrite(trigPin, LOW);

// Read echo

duration = pulseIn(echoPin, HIGH);

distance = duration * 0.034 / 2; // Convert to cm

Serial.print("Distance: ");

Serial.println(distance);

// If object is within 20 cm, open the door

if (distance < 20 && distance > 0) {

    doorServo.write(90); // Door opens

    delay(2000); // Keep open for 2 seconds

} else {

    doorServo.write(0); // Door closes

}

delay(500);
```

## Output:

