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:

Serial Monitor

```
Distance: 57
Distance: 57
Distance: 57
Distance: 57
Distance: 56
Distance: 57
Distance: 57
Distance: 57
```