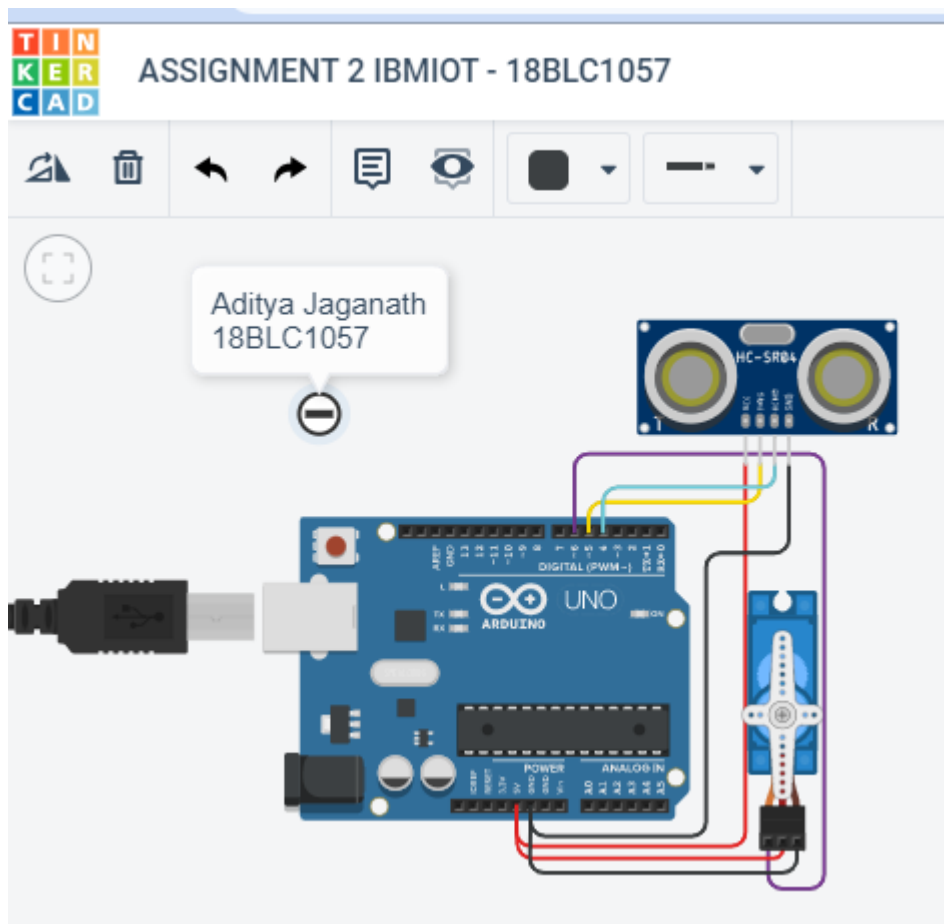# Assignment-2

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Develop an "Automatic garage door opening system". Use an Ultrasonic sensor to detect if there is a vehicle in front of the garage. If any vehicle is detected open the garage door (rotate the servo motor) for some time and close it.

- **Circuit in tinkercad:**

- **Code:**

```
#include <Servo.h>

int p = 0;

int t=5;

int e=4;
```

```
Servo s;

void setup()
{
  s.attach(6, 500, 2500);
  pinMode(t,OUTPUT);
  pinMode(e,INPUT);
  Serial.begin(9600);
  s.write(0);
}
void loop()
{
  digitalWrite(t,LOW);
  digitalWrite(t,HIGH);
  delayMicroseconds(10);
  digitalWrite(t,LOW);
  float d=pulseIn(e,HIGH);
  float dis=(d*0.0343)/2;
  Serial.print("Distance in cm:");
  Serial.println(dis);
  if(dis<150)
  {
 for (p = 0; p <= 180; p += 1) {
    s.write(p);
    delay(15);
  }
   delay(5000);
  for (p = 180; p >= 0; p-= 1) {
    s.write(p);
```
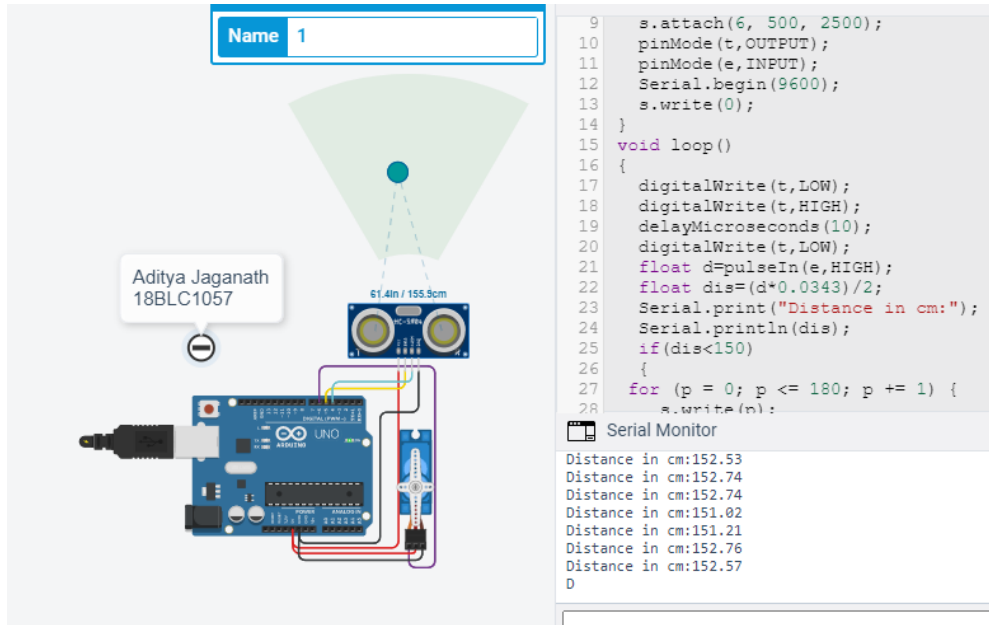
```
    delay(15);

   }

  }

}
```

OUTPUT:

When distance > 150, servo motor is at 0 (closed)


```
 9     s.attach(6, 500, 2500);
10     pinMode(t,OUTPUT);
11     pinMode(e,INPUT);
12     Serial.begin(9600);
13     s.write(0);
14  }
15  void loop()
16  {
17     digitalWrite(t,LOW);
18     digitalWrite(t,HIGH);
19     delayMicroseconds(10);
20     digitalWrite(t,LOW);
21     float d=pulseIn(e,HIGH);
22     float dis=(d*0.0343)/2;
23     Serial.print("Distance in cm:");
24     Serial.println(dis);
25     if(dis<150)
26     {
27      for (p = 0; p <= 180; p += 1) {
28        s.write(p);
```
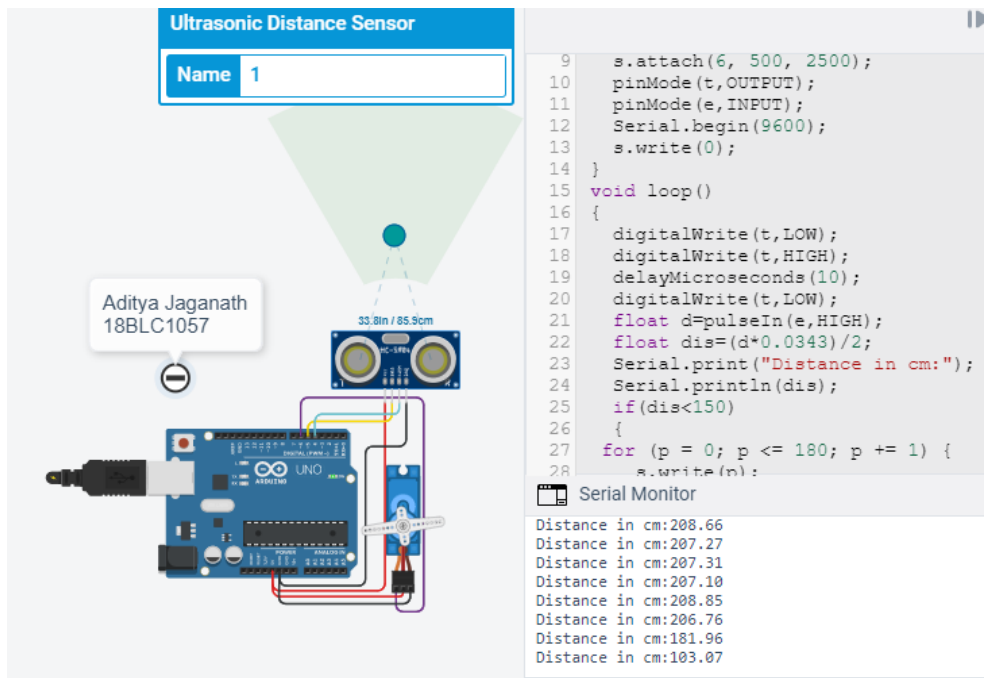
Serial Monitor

```
Distance in cm:152.53
Distance in cm:152.74
Distance in cm:152.74
Distance in cm:151.02
Distance in cm:151.21
Distance in cm:152.76
Distance in cm:152.57
D
```

When distance < 150, servo motor starts to rotate (open) , wait for 5 seconds returns to 0 (closed)


```
 9     s.attach(6, 500, 2500);
10     pinMode(t,OUTPUT);
11     pinMode(e,INPUT);
12     Serial.begin(9600);
13     s.write(0);
14  }
15  void loop()
16  {
17     digitalWrite(t,LOW);
18     digitalWrite(t,HIGH);
19     delayMicroseconds(10);
20     digitalWrite(t,LOW);
21     float d=pulseIn(e,HIGH);
22     float dis=(d*0.0343)/2;
23     Serial.print("Distance in cm:");
24     Serial.println(dis);
25     if(dis<150)
26     {
27      for (p = 0; p <= 180; p += 1) {
28        s.write(p);
```

Serial Monitor

```
Distance in cm:208.66
Distance in cm:207.27
Distance in cm:207.31
Distance in cm:207.10
Distance in cm:208.85
Distance in cm:206.76
Distance in cm:181.96
Distance in cm:103.07
```

Tinkercad Link:

https://www.tinkercad.com/things/224aIxhsNfw-powerful-gaaris/editel?sharecode=2odWYPwbHIoVgqBlS_NQiHNDimbqWh-6UgXTv1SEJtE