

5.1 Code

```
#include <Servo.h>

#include <LiquidCrystal.h>

Servo myservo;
LiquidCrystal lcd(7, 6, 5, 4, 3, 2); // Creates an LCD object. Parameters: (rs, enable, d4, d5, d6, d7)

int pos = 0; // la position initiale du servo moteur
const int trigPin = 9;
const int echoPin = 10;
const int moteur = 11;
const int buzzer = 12;
const int ledPin1 = 14;
const int ledPin2 = 15;
float distanceCm, DistanceSec,duration;

void setup() {
  myservo.attach(moteur); // attache le Servo moteur a la pin numéro 11
  lcd.begin(16,2); // Initialiser l'interface de Lcd avec leurs Dimensions
  pinMode(trigPin, OUTPUT);
  pinMode(echoPin, INPUT);
  pinMode(buzzer, OUTPUT);
  pinMode(ledPin1, OUTPUT);
  pinMode(ledPin2, OUTPUT);
  DistanceSec=20;

}

void loop() {
  for (pos = 0; pos <= 180; pos += 1) { // aller de 0 a 180 degée
    // in steps of 1 degree
    myservo.write(pos); // Programmer le Servo pour aller a la position (pos)
    digitalWrite(trigPin, LOW);
    delayMicroseconds(2);
    digitalWrite(trigPin, HIGH); //envoyer une impulsion de 10 micro seconds
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delayMicroseconds(10);
digitalWrite(trigPin, LOW);

duration = pulseIn(echoPin, HIGH);
distanceCm= duration*0.034/2;
if (distanceCm <= DistanceSec)
{

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{

tone(buzzer, 10); // Send 1KHz sound signal...
digitalWrite(ledPin1, LOW);
digitalWrite(ledPin2, HIGH);
delay(700);
noTone(buzzer); // Stop sound...
lcd.setCursor(0,0); // positionner le cursor a 0,0
lcd.print("Distance: "); // Printe "Distance" sur LCD
lcd.print(distanceCm); // Printe la valeur Obtenue sur LCD
lcd.print(" cm "); // Printe l'unité sur LCD
delay(10);
lcd.setCursor(0,1);
lcd.print("Angle : ");
lcd.print(pos);
lcd.print(" deg ");
delay(2000);
}
else
{
digitalWrite(buzzer, HIGH);
digitalWrite(ledPin2, LOW);
digitalWrite(ledPin1, HIGH);
delay(100);
digitalWrite(buzzer, LOW);
lcd.setCursor(0,0); // positionner le cursor a 0,0
lcd.print("Distance: "); // Printe "Distance" sur LCD
lcd.print(distanceCm); // Printe la valeur Obtenue sur LCD
lcd.print(" cm "); // Printe l'unité sur LCD

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delay(10);
lcd.setCursor(0,1);
lcd.print("Angle : ");
lcd.print(pos);
lcd.print(" deg ");
delay(2000);
}
}
else{
digitalWrite(buzzer, LOW);
digitalWrite(ledPin1, LOW);
digitalWrite(ledPin2, LOW);
}

lcd.setCursor(0,0); // positionner le cursor a 0,0
lcd.print("Distance: "); // Printe "Distance" sur LCD
lcd.print(distanceCm); // Printe la valeur Obtenue sur LCD
lcd.print(" cm "); // Printe l'unité sur LCD
delay(10);
lcd.setCursor(0,1);
lcd.print("Angle : ");
lcd.print(pos);
lcd.print(" deg ");
delay(80); //attendre 100ms pour que le servo cherche sa position

}

for (pos = 180; pos >= 0; pos -= 1) { //
myservo.write(pos); //
digitalWrite(trigPin, LOW);
delayMicroseconds(2);
digitalWrite(trigPin, HIGH);
delayMicroseconds(10);
digitalWrite(trigPin, LOW);

duration = pulseIn(echoPin, HIGH);
distanceCm= duration*0.034/2;
if (distanceCm <= DistanceSec){
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```

```

{
tone(buzzer, 10); // Send 1KHz sound signal...
digitalWrite(ledPin1, LOW);
digitalWrite(ledPin2, HIGH);
delay(700);
noTone(buzzer); // Stop sound...
lcd.setCursor(0,0); // positionner le cursor a 0,0
lcd.print("Distance: "); // Printe "Distance" sur LCD
lcd.print(distanceCm); // Printe la valeur Obtenue sur LCD
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delay(10);
lcd.setCursor(0,1);
lcd.print("Angle : ");
lcd.print(pos);
lcd.print(" deg ");
delay(2000);
}
else
{
digitalWrite(buzzer, HIGH);
digitalWrite(ledPin2, LOW);
digitalWrite(ledPin1, HIGH);
delay(100);
digitalWrite(buzzer, LOW);
lcd.setCursor(0,0); // positionner le cursor a 0,0
lcd.print("Distance: "); // Printe "Distance" sur LCD
lcd.print(distanceCm); // Printe la valeur Obtenue sur LCD
lcd.print(" cm "); // Printe l'unité sur LCD
delay(10);
lcd.setCursor(0,1);
lcd.print("Angle : ");
lcd.print(pos);
lcd.print(" deg ");
delay(2000);
}
}
else{
digitalWrite(buzzer, LOW);

```

```
digitalWrite(ledPin1, LOW);  
digitalWrite(ledPin2, LOW);  
}
```

```
lcd.setCursor(0,0); //  
lcd.print("Distance: "); //  
lcd.print(distanceCm); //  
lcd.print(" cm ");  
delay(10);  
lcd.setCursor(0,1);  
lcd.print("Angle : ");  
lcd.print(pos);  
lcd.print(" deg ");  
delay(80);  
}  
}
```