Requirements :

1- library for controlling servo motors (such as Servo.h In Arduino)

2- Define servo motors associated with each joint of the robot

3-etermine the movement angles for each joint to achieve the walking motion

Walking Algorithm :

<include <Servo.h

Define the servo motors //

Servo hipServoLeft;

Servo kneeServoLeft;

Servo ankleServoLeft;

Servo hipServoRight;

Servo kneeServoRight;

Servo ankleServoRight;

Define the movement angles //

Int hipForward = 90;

Int hipBackward = 45;

Int kneeUp = 30;

Int kneeDown = 90;

Int ankleUp = 60;

Int ankleDown = 90;

Function to smoothly move the servo //

} Void smoothMove(Servo &servo, int targetAngle, int delayTime)

;()Int currentAngle = servo.read

} If (currentAngle < targetAngle)

```
} For (int I = currentAngle; I <= targetAngle; I++)
Servo.write(i)     ;
Delay(delayTime)    ;
{
} else {
} For (int I = currentAngle; I >= targetAngle; i--)
Servo.write(i)   ;
Delay(delayTime)    ;
{
{
{

Function for the left leg forward step //
Void stepForwardLeft() {
smoothMove(hipServoLeft, hipForward, 10)  ;
smoothMove(kneeServoLeft, kneeUp, 10)  ;
smoothMove(ankleServoLeft, ankleUp, 10)  ;
smoothMove(hipServoLeft, hipBackward, 10)  ;
smoothMove(kneeServoLeft, kneeDown, 10)  ;
smoothMove(ankleServoLeft, ankleDown, 10)  ;
{

Function for the right leg forward step //
Void stepForwardRight() {
smoothMove(hipServoRight, hipForward, 10) ;
smoothMove(kneeServoRight, kneeUp, 10)  ;
smoothMove(ankleServoRight, ankleUp, 10)  ;
smoothMove(hipServoRight, hipBackward, 10)  ;
smoothMove(kneeServoRight, kneeDown, 10)  ;
```

```
smoothMove(ankleServoRight, ankleDown, 10)  ;
{

Void setup() {
Attach the servo motors to the legs //
hipServoLeft.attach(2)  ;
kneeServoLeft.attach(3)  ;
ankleServoLeft.attach(4)  ;
hipServoRight.attach(5)  ;
kneeServoRight.attach(6)  ;
ankleServoRight.attach(7)  ;

Move the legs to the initial position //
hipServoLeft.write(hipBackward)  ;
kneeServoLeft.write(kneeDown)  ;
ankleServoLeft.write(ankleDown)  ;
hipServoRight.write(hipBackward)  ;
kneeServoRight.write(kneeDown)  ;
ankleServoRight.write(ankleDown)  ;

delay(1000)  ;
{

Void loop() {
Move the robot step by step //
()stepForwardLeft ;
delay(1000); // Add a delay between steps for better balance
()stepForwardRight ;
delay(1000);
```

{

Algorithm Explanation :

Define Servo Motors: Define the servo motors for each joint of the leg-1

2- Define Movement Angles: Set the movement angles for each joint to achieve the walking step.

SmoothMove Function: To smoothly move the servo motors to the target -3 angle.

4- StepForwardLeft and stepForwardRight Functions: To move the left and right legs forward, respectively .

5- Setup Function: To set up the servo motors and position the legs in the initial state.

6- Loop Function: To alternate the walking steps between the left and right legs .