

## Task A . Two Servos involved

Take it as **Servo1** and **Servo 2** for now

Each servo should have following attributes that I can adjust individually. Rotation should be very smooth.

I should be able to change the following attributes of each but shouldn't affect each other servos,  
Example – **Servo 1** middle position 45 degree while **Servo 2** maintain the middle position on 120 Degree.  
Later I change **Servo 1** middle position to 80 Degree while **Servo 2** middle position still on 120 Degree :

1. Middle Position
2. Left Position
3. Right Position
4. Left Rotation speed
5. Left to middle rotation speed
6. Right Rotation speed
7. Right to middle rotation speed
8. Middle Waiting time
9. Right waiting time
10. Left waiting time

### Scenario:

Servo always should stay in middle position

When a button press:

servos should rotate from middle position to left position

Left waiting time

back to middle position

stay in middle waiting time

rotate to right position from the middle position

Right waiting time

back to middle position.

### Input to Dot Matrix Display (Illustration 1)

When **Servo1** (only **Servo 1** involving) in the middle point, display a straight line in the middle.

When Servo1 turning left, display a line in the left corner of the Matrix (Use the same display for returning to middle).

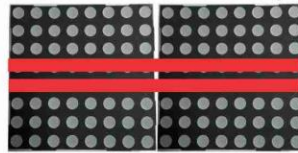
When Servo1 on left waiting time, display a line in the middle of the left Matrix

When Servo1 turning right, display a line in right corner of the right Matrix (Use the same display for returning to middle)

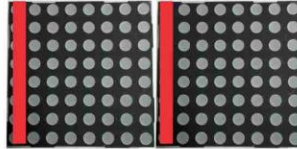
When Servo1 on right waiting time, display a line in the right middle of the right Matrix

Dot matrix illustration for the above rotation display

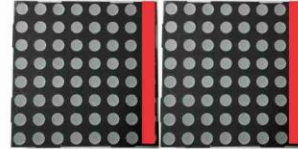
Servo1 in the middle point



Servo1 turning left



Servo1 turning right



Servo1 left waiting time



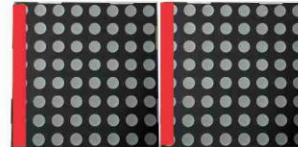
Servo1 right waiting time



Servo1 back to middle



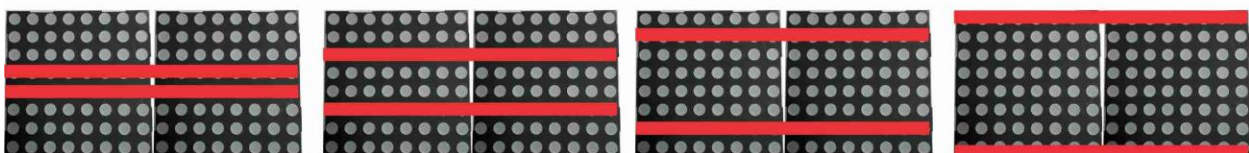
Servo1 back to middle



Give a little animation for the middle point display



wait 3 seconds



isnt it fun!!!.

Illustration 1

## Task B. Temperature (DHT11 Basic module)

Display Temperature on the dotmatrix when a button press so use a separate button for this. Let's name the button **TempButton** for now.

When TempButton pressed 1 time > Display temperature in Fahrenheit. If no user interaction, wait 7 seconds then automatically switch to main clock display

When TempButton pressed 2 time > Display temperature in Celsius. If no user interaction, wait 7 seconds then automatically switch to main clock display

When TempButton pressed 3 time > Display Humidity. If no user interaction, wait 7 seconds then automatically switch to main clock display

So the above scenario is like cycle 3 times on the temperature menu. Each cycle waiting time is 7 seconds after the button press

Lets assume user keep pressing the TempButton. It goes like this:

**F > C > H > F > C > H > F > C > H....**infinite until user keep pressing. Lets assume user stops pressing the button at any point, then wait 7 seconds and return to main clock display and alarm menu

F = Fahrenheit  
C = Celsius  
H = Humid

