Course Name:	**Microprocessors and Peripherals (2UXC404)**	**Semester:**	**IV**
Date of Performance:	06 / 05 / 2021	**Batch No:**	B2
Faculty Name:	Prof. Kirti Sawlani	**Roll No:**	1912052
Faculty Sign & Date:		**Grade/Marks :**	___/25

Miniproject

Title: Traffic Lights Simulator

Aim and Objective of the Experiment:

Aim: Developing a Traffic Light system using the inbuilt trafficlight.exe in 8086

Objectives:
Ensuring smooth flow of traffic in simulator by the use of traffic lights and delays.
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COs to be achieved:

CO 2. Develop 8086 based assembly language programs for various applications.

Useful links

Simulator/Emulator:
https://emu8086-microprocessor-emulator.en.softonic.com/download

DOSBox x86 emulator
https://sourceforge.net/projects/dosbox/

Work done

1. Write report of your miniproject here containing abstract, introduction, code and screenshots of your output.

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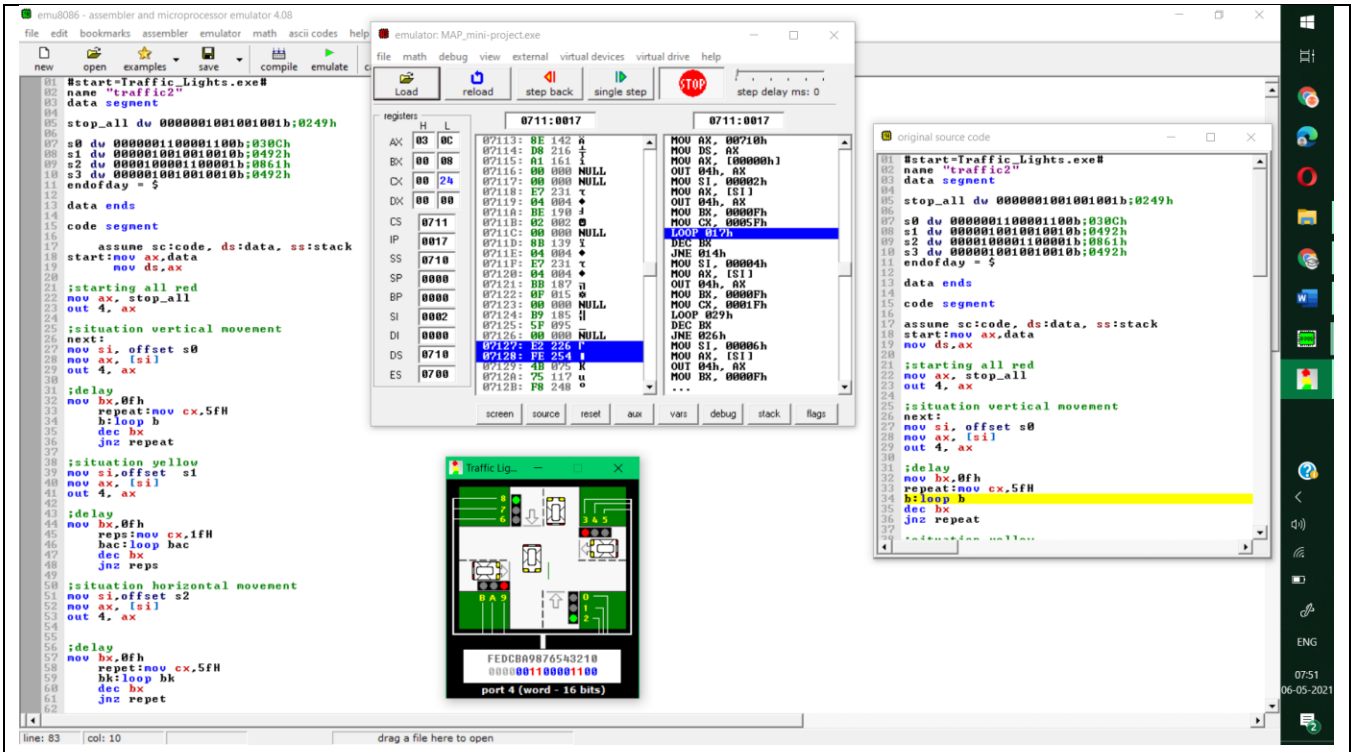
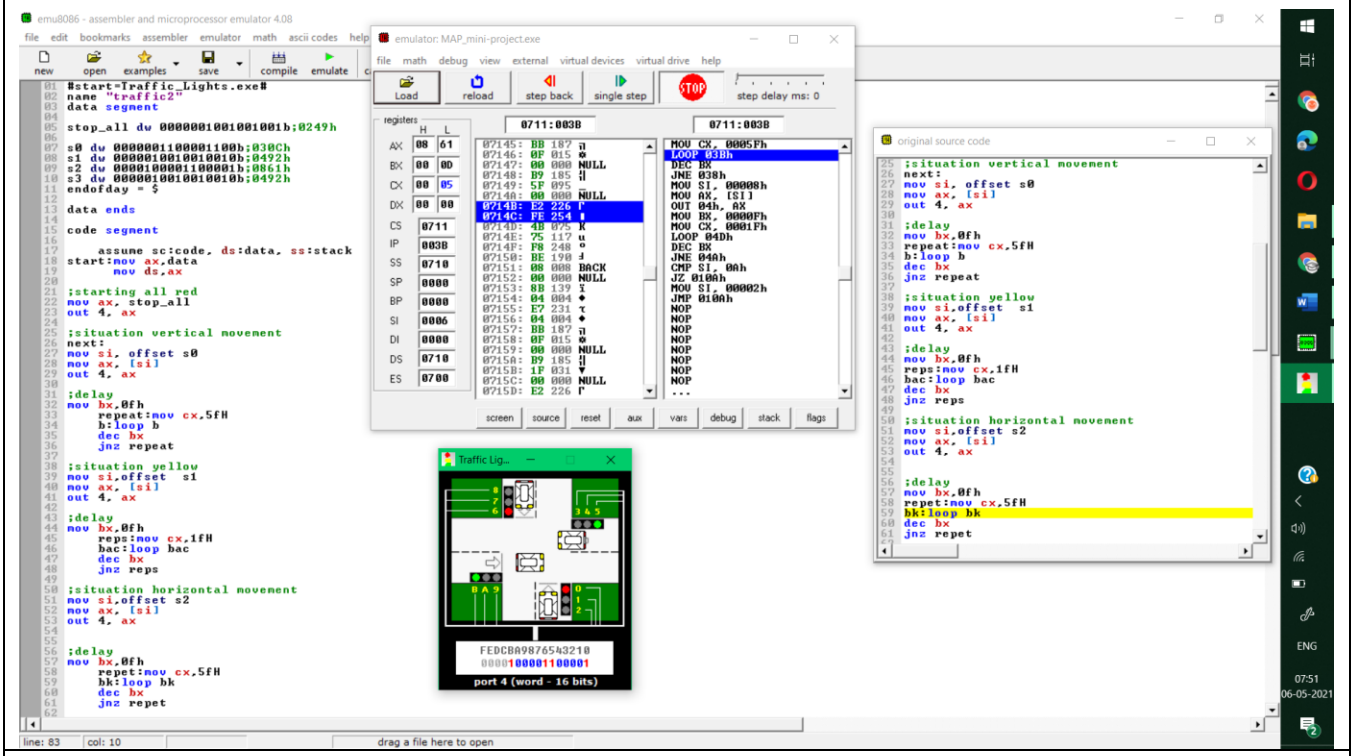
There are 7 devices attached to the emulator: traffic lights, stepper-motor, LED display, thermometer, printer, robot and simple test device. We can view devices when you click "Virtual Devices" menu of the emulator.

Code:

```
#start=Traffic_Lights.exe#
name "traffic2"
data segment

stop_all dw 0000001001001001b;0249h

s0 dw 0000001100001100b;030Ch
s1 dw 0000010010010010b;0492h
s2 dw 0000100001100001b;0861h
s3 dw 0000010010010010b;0492h
endofday = $

data ends

code segment

   assume sc:code, ds:data, ss:stack
start:mov ax,data
     mov ds,ax

;starting all red
mov ax, stop_all
out 4, ax

;situation vertical movement
next:
mov si, offset s0
mov ax, [si]
out 4, ax

;delay
mov bx,0fh
   repeat:mov cx,5fH
   b:loop b
   dec bx
   jnz repeat

;situation yellow
mov si,offset  s1
mov ax, [si]
```

```
out 4, ax

;delay
mov bx,0fh
   reps:mov cx,1fH
   bac:loop bac
   dec bx
   jnz reps

;situation horizontal movement
mov si,offset s2
mov ax, [si]
out 4, ax


;delay
mov bx,0fh
   repet:mov cx,5fH
   bk:loop bk
   dec bx
   jnz repet


;situation yellow
mov si,offset s3
mov ax, [si]
out 4, ax

;delay
mov bx,0fh
   r:mov cx,1fH
   a:loop a
   dec bx
   jnz r


cmp si, endofday
jz  next
mov si, offset s0
jmp next

code ends
end start
```


emu8086 - assembler and microprocessor emulator 4.08
emulator: MAP_mini-project.exe
original source code
Traffic Lig...
FEDCBA9876543210
0000001100001100
port 4 (word - 16 bits)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FEDCBA9876543210
0000100000110000
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The code will run for infinite time as the outer loop's condition will never be satisfied and the program will never break out of the loop.

Conclusion:

Thus, we have written a machine code program which controls a set of traffic lights and provides the timing of the light sequence with the emu8086 emulator.

Signature of faculty in-charge with Date: