# Traffic lights System
## Microprocessor Project

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# Traffic lights

- **CODE:**

```
#start=Traffic_Lights.exe#

startOfSystem:

mov ax, R_G_R_G
out 4, ax

;(DELAY 1 MIN )
mov    cx, 0393h   ;   03938700H=60 000 000 microseconds
mov    dx, 8700h
mov    ah, 86h
int    15h

;(DELAY 1 MIN )
mov    cx, 0393h
mov    dx, 8700h
mov    ah, 86h     ;   interupt the bios
int    15h


;-------------------------------------------------------


mov ax,RY_GY_RY_GY
out 4,ax

;(DELAY 1 MIN )
mov    cx, 0393h
mov    dx, 8700h
mov    ah, 86h
int    15h
;-------------------------------------------------------
```

```asm
        mov ax, G_R_G_R
        out 4, ax

        ;(DELAY 1 MIN )
        mov    cx, 0393h
        mov    dx, 8700h
        mov    ah, 86h
        int    15h

        ;(DELAY 1 MIN )
        mov    cx, 0393h
        mov    dx, 8700h
        mov    ah, 86h
        int    15h
        ;--------------------------------------------------------

        mov ax,GY_RY_GY_RY
        out 4,ax

        ;(DELAY 1 MIN )
        mov    cx, 0393h
        mov    dx, 8700h
        mov    ah, 86h
        int    15h
        ;--------------------------------------------------------

        jmp startOfSystem

        ; WEST NORTH EAST SOUTH
        R_G_R_G             equ    0000_0011_0000_1100b
        RY_GY_RY_GY         equ    0000_0111_1001_1110b
        G_R_G_R             equ    0000_1000_0110_0001b
        GY_RY_GY_RY         equ    0000_1100_1111_0011b
```
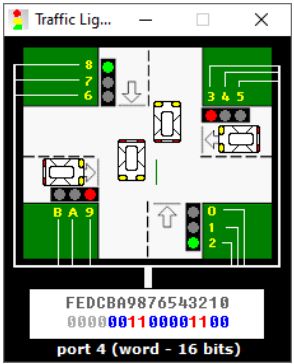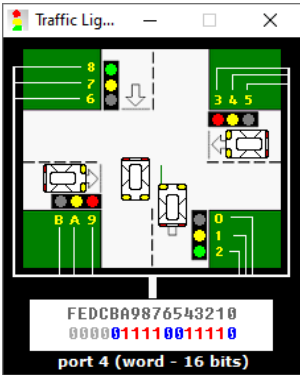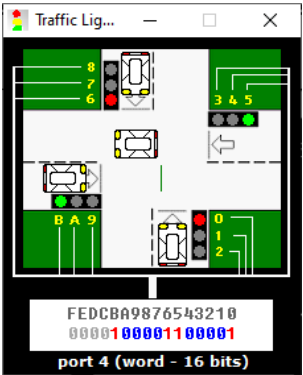
## ✛ Explanation of the executable software

- The port address is 4 (the port of the traffic lights)
- Classification of the 16 bit o/p port

| Un used | | | | West Traffic light | | | North Traffic light | | | East Traffic light | | | South Traffic light | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| F | E | D | C | B | A | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| | | | | | | | | | | | | | | | |



 For every traffic light Red is the least significant of the 3 bits, Yellow is the middle significant and Green is the most significant .

| Time (min) | The output screen |
|---|---|
| 0-2 | <br>FEDCBA9876543210<br>0000001100001100<br>**port 4 (word - 16 bits)** |
| 2-3 | <br>FEDCBA9876543210<br>0000011110011110<br>**port 4 (word - 16 bits)** |
| 3-5 | <br>FEDCBA9876543210<br>0000100001100001<br>**port 4 (word - 16 bits)** |
| 5-6 | <br>FEDCBA9876543210<br>0000110011110011<br>**port 4 (word - 16 bits)** |