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| **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**

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| **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. |

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| **Useful links** |
| Simulator/Emulator:  <https://emu8086-microprocessor-emulator.en.softonic.com/download>  DOSBox x86 emulator  <https://sourceforge.net/projects/dosbox/> |

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| **Work done** |
| 1. Write report of your miniproject here containing abstract, introduction, code and screenshots of your output. |
| Roll no. 1912052 – Vedant Kelkar  1912060 – Nachiket Naik |
| 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 |
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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:**