PassiveLogic

Coding Assessment Documentation

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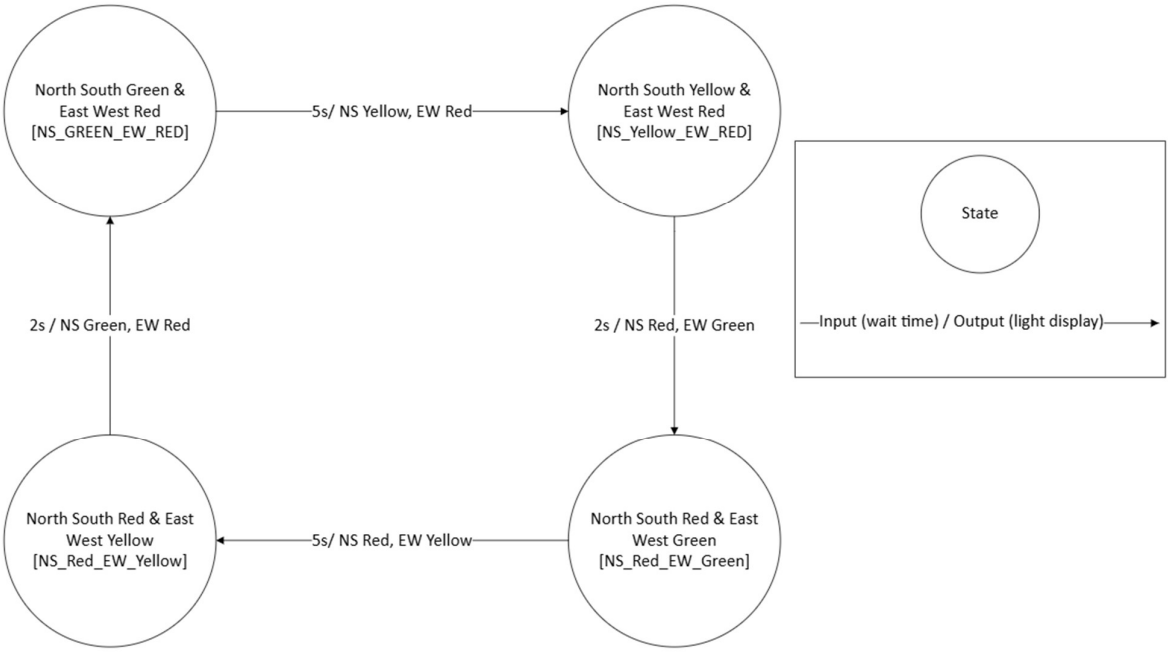
1. State Machine



2. Q1 . Traffic Light C code execution instructions

main.c consists code to execute the traffic light state machine
traffic_light.c code contains functions of the state machine
traffic_light.h contains enumerated and global data along with function declarations.
Makefile contains execution order for all the files mentioned above and generates executable file ***./traffic_light_sim*** **.**

Instructions to Execute:

1. Open Terminal with GCC, direct to the directory containing above files.
2. Enter ***make,*** this will generate object files and the required executable file.
3. Enter ***./traffic_light_sim*** . State Transitions after 5s and 2s respectively between states.

Snapshots:

```
Windows PowerShell
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Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS V:\Raghavendra_Coding Assesment\Q1_MainCode> bash
vamsi@MyDevice:/mnt/v/Raghavendra_Coding Assesment/Q1_MainCode$ make
gcc  -c main.c
gcc  -c traffic_light.c
gcc  -o traffic_light_sim main.o traffic_light.o
vamsi@MyDevice:/mnt/v/Raghavendra_Coding Assesment/Q1_MainCode$ ./traffic_light_sim
Traffic Light System Simulation
North-South: GREEN  --- East-West: RED
North-South: YELLOW --- East-West: RED
North-South: RED    --- East-West: GREEN
North-South: RED    --- East-West: YELLOW
North-South: GREEN  --- East-West: RED
Simulation Ended.
vamsi@MyDevice:/mnt/v/Raghavendra_Coding Assesment/Q1_MainCode$
```

3 . Q2 Test Suite Execution Instructions:

For test suite, I am using Unity framework as part of Unit testing tool. The required files are also placed in **unity** directory and is included in the test code traffic_light_test.c. Therefore please make sure the directory is present in the same folder as the test code is present as shown below.

Name	Date modified	Type	Size
unity	26-02-2025 22:03	File folder	
main	26-02-2025 21:50	C Source File	1 KB
Makefile	26-02-2025 21:28	File	1 KB
traffic_light	26-02-2025 22:00	C Source File	2 KB
traffic_light	26-02-2025 20:39	C Header Source F...	1 KB
traffic_light_test	26-02-2025 21:47	C Source File	2 KB

Instructions to Execute:

1. Open Terminal with GCC, direct to the directory containing above files.
2. Enter ***make test***, this will generate files linked with unity..

3. Runs the test cases and produces the test results.

Test snapshots: