LAB 05

Using multiple timers to develop the logic for Traffic signal

OBJECTIVE:

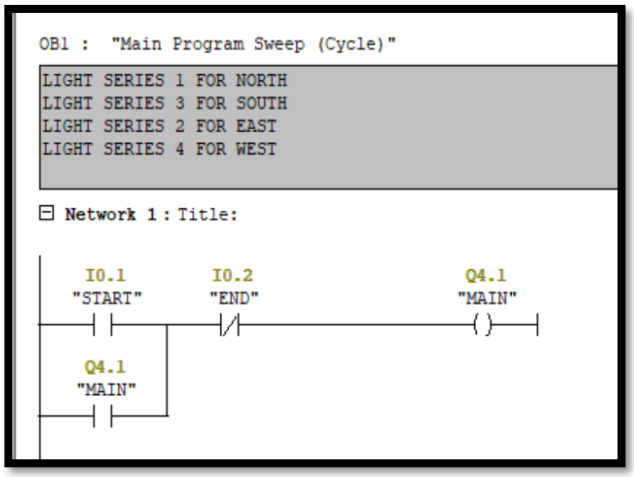
- To practice the use of multiple Timer instructions and sequences
- To develop the ladder logic
- To simulate the logic
- To download the program in PLC and check the results in real time

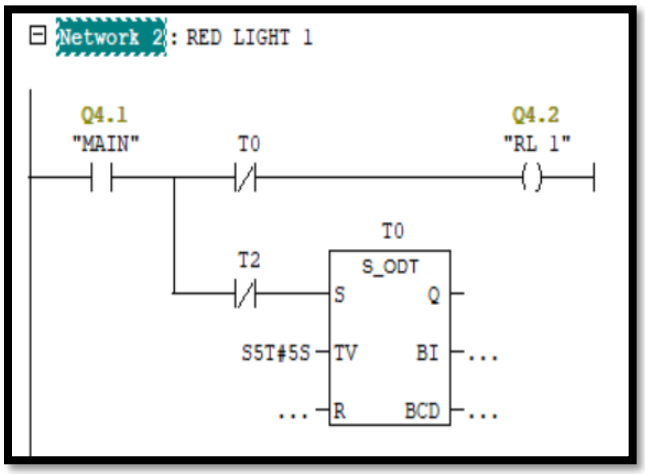
TASK:

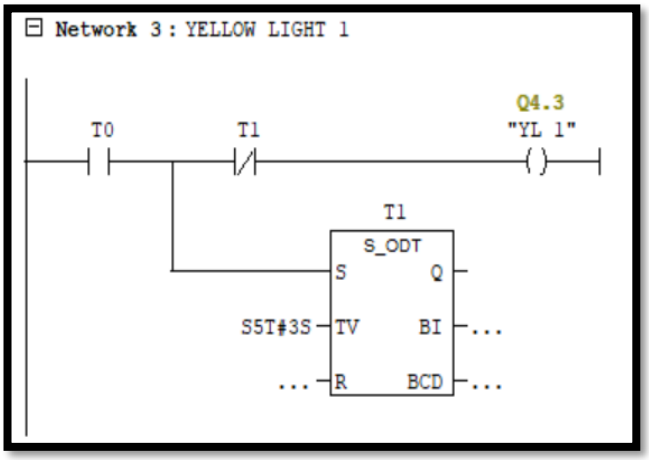
- In this application the PLC is used to control the 4-way traffic signals.
- Traffic signal starts working after pressing the push button.
- The sequence of the lights are

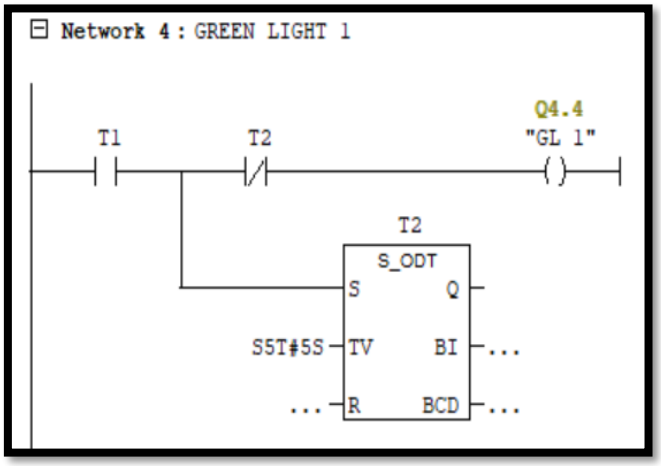
  RED → YELLOW → GREEN → YELLOW → RED.
- Red light will be on for 5 seconds.
- Then after that yellow light will be on for 3 seconds
- Green light for 5seconds.
- After than yellow light will be on & then red & this whole process will be repeated.

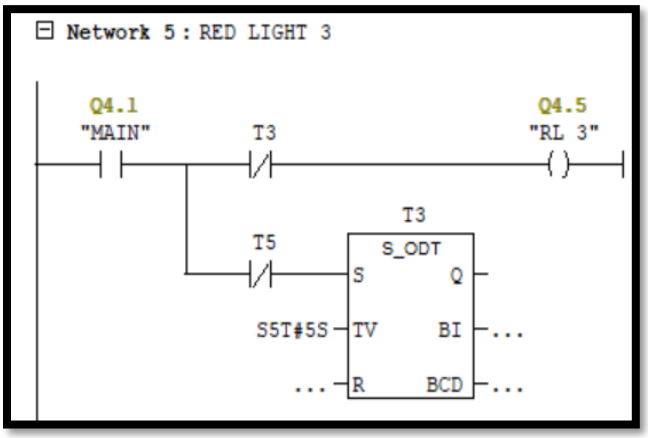
SIMATIC MANAGER STEP 7 PROGRAM:

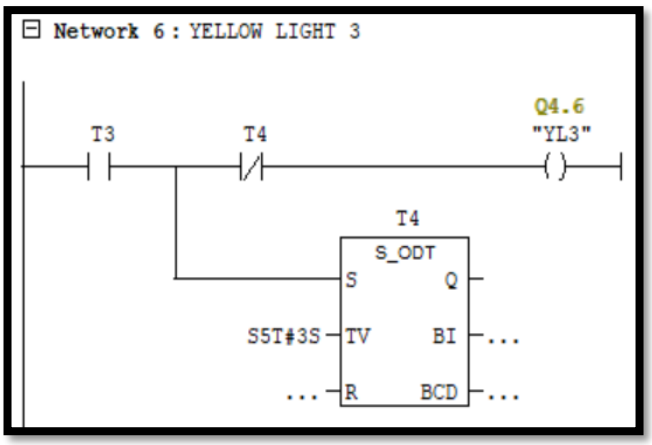


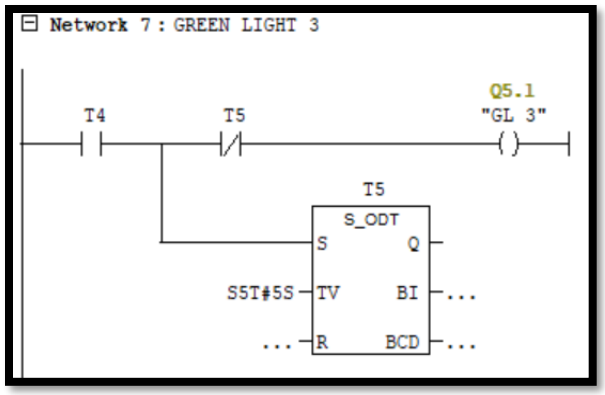


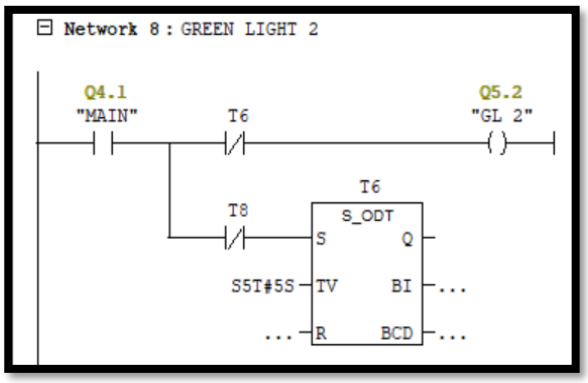


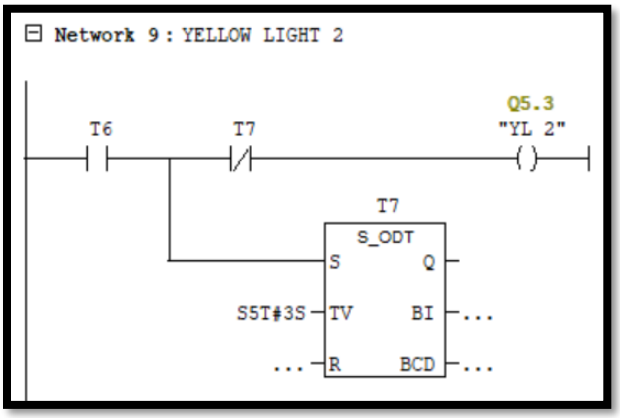


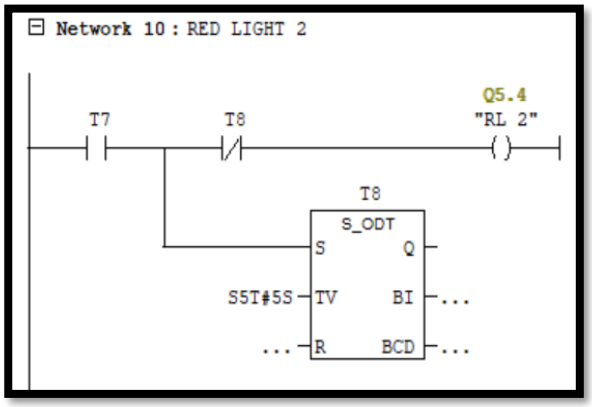


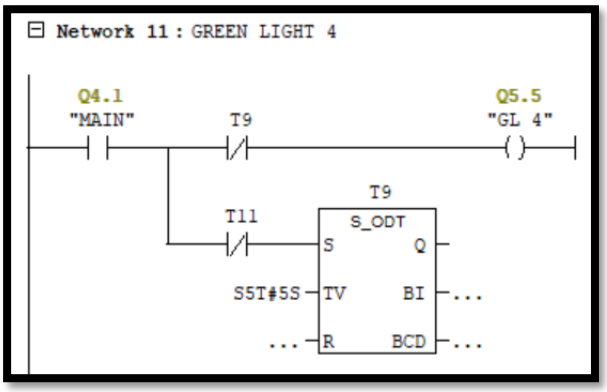


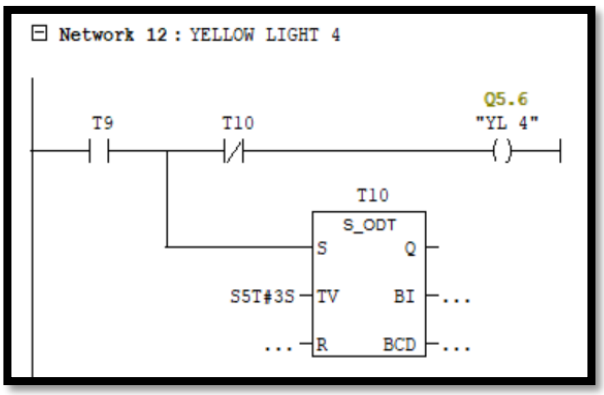

Network 7 : GREEN LIGHT 3
T4
T5
Q5.1
"GL 3"
T5
S_ODT
S
Q
S5T#5S
TV
BI
R
BCD

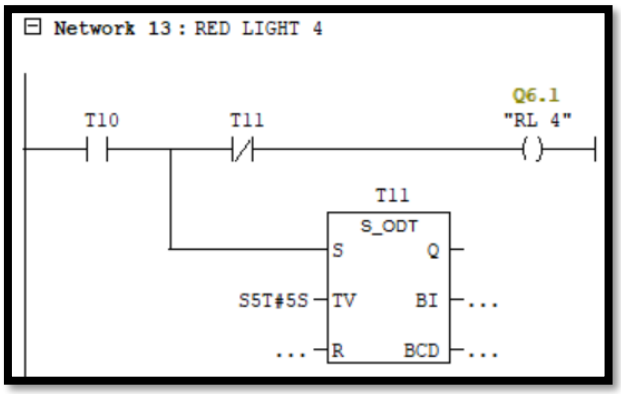

Network 8 : GREEN LIGHT 2
Q4.1
"MAIN"
T6
Q5.2
"GL 2"
T8
T6
S_ODT
S
Q
S5T#5S
TV
BI
R
BCD


Network 9 : YELLOW LIGHT 2
T6
T7
Q5.3
"YL 2"
T7
S_ODT
S
Q
S5T#3S
TV
BI
R
BCD


Network 10 : RED LIGHT 2
T7
T8
Q5.4
"RL 2"
T8
S_ODT
S
Q
S5T#5S
TV
BI
R
BCD


Network 11 : GREEN LIGHT 4
Q4.1
"MAIN"
T9
Q5.5
"GL 4"
T11
T9
S_ODT
S
Q
S5T#5S
TV
BI
R
BCD


Network 12 : YELLOW LIGHT 4
T9
T10
Q5.6
"YL 4"
T10
S_ODT
S
Q
S5T#3S
TV
BI
R
BCD


Network 13 : RED LIGHT 4
T10
T11
Q6.1
"RL 4"
T11
S_ODT
S
Q
S5T#5S
TV
BI
R
BCD

VARIABLE TABLE

		Address	Symbol	Display format	Status value
1		Q 4.1	"MAIN"	BOOL	true
2		Q 4.2	"RL 1"	BOOL	false
3		Q 4.3	"YL 1"	BOOL	false
4		Q 4.4	"GL 1"	BOOL	true
5		Q 4.5	"RL 3"	BOOL	false
6		Q 4.6	"YL3"	BOOL	false
7		Q 5.1	"GL 3"	BOOL	true
8		Q 5.2	"GL 2"	BOOL	false
9		Q 5.3	"YL 2"	BOOL	false
10		Q 5.4	"RL 2"	BOOL	true
11		Q 5.5	"GL 4"	BOOL	false
12		Q 5.6	"YL 4"	BOOL	false
13		Q 6.1	"RL 4"	BOOL	true