Traffic Light System

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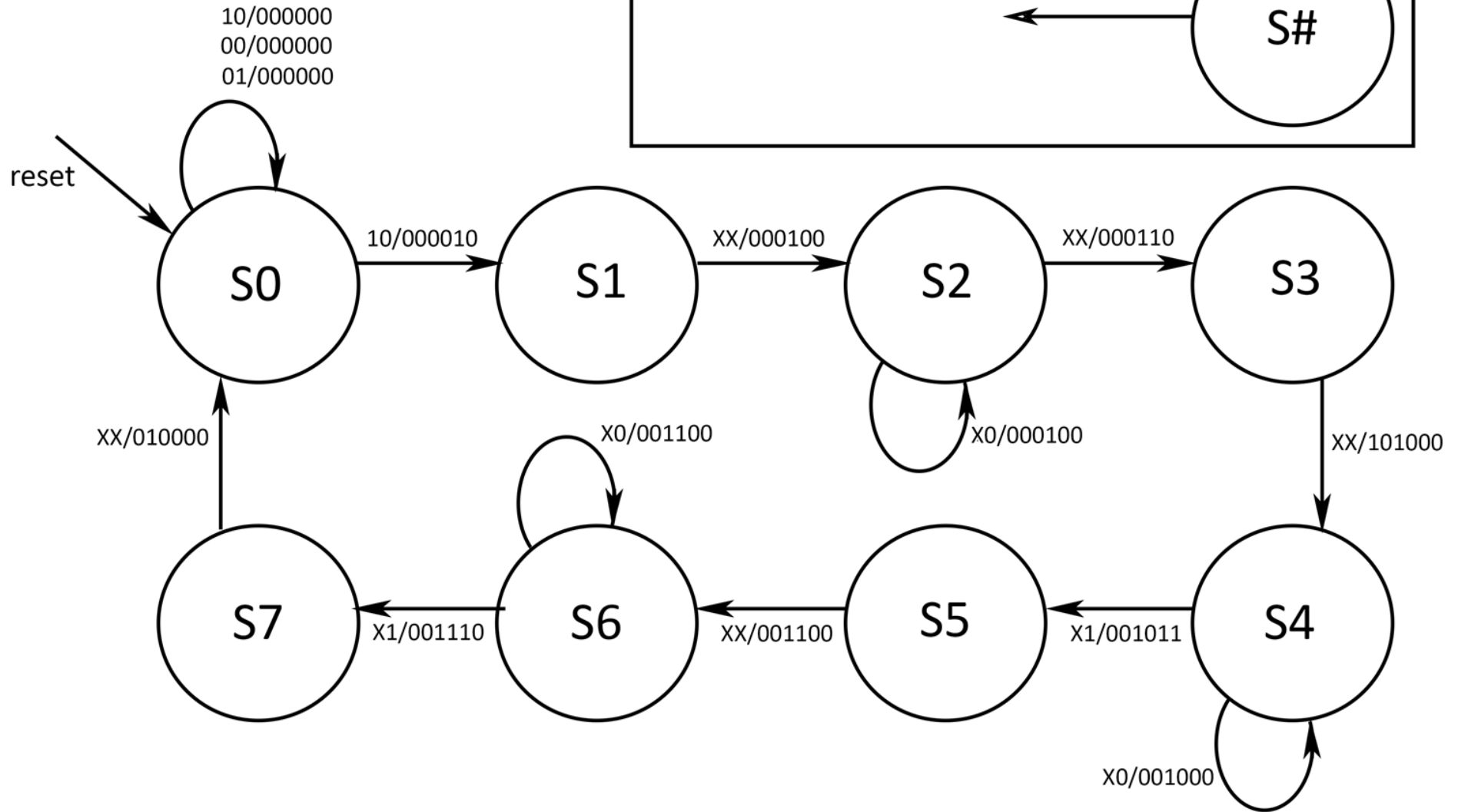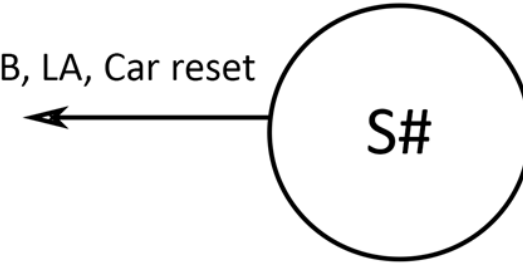Martin Siddons - 100225776

Traffic Light Controller State Diagram

4_8 Timer Transition Table

CS	Q1	Q0	T4	T8	Q1+	Q0+	done
S0	0	0	0	0	0	0	1
S0	0	0	0	1	0	1	0
S0	0	0	1	0	1	1	0
S0	0	0	1	1	0	0	0
S1	0	1	0	0	1	0	0
S1	0	1	0	1	1	0	0
S1	0	1	1	0	1	0	0
S1	0	1	1	1	1	0	0
S2	1	0	0	0	1	1	0
S2	1	0	0	1	1	1	0
S2	1	0	1	0	1	1	0
S2	1	0	1	1	1	1	0
S3	1	1	0	0	0	0	0
S3	1	1	0	1	0	0	0
S3	1	1	1	0	0	0	0
S3	1	1	1	1	0	0	0

4_8 Timer Minimized Transition Table

CS	Q1	Q0	T4	T8	Q1+	Q0+	done
S0	0	0	0	0	0	0	1
S0	0	0	0	1	0	1	0
S0	0	0	1	0	1	1	0
S0	0	0	1	1	0	0	0
S1	0	1	X	X	1	0	0
S2	1	0	X	X	1	1	0
S3	1	1	X	X	0	0	0

Traffic Light Decoder Karnaugh Maps

MR

		LC	LB		
		00	01	11	10
LA	0	0	1	1	1
	1	0	1	1	1

MR = LC + LB

MA

		LC	LB		
		00	01	11	10
LA	0	0	0	0	0
	1	1	0	1	0

MA = LC.LB.LA +
¬LC.¬LB.LA

SR

		LC	LB		
		00	01	11	10
LA	0	1	1	1	0
	1	1	1	1	0

SR = ¬LC + LB

SA

		LC	LB		
		00	01	11	10
LA	0	0	0	0	0
	1	0	1	0	1

SA = ¬LC.LB.LA +
LC.¬LB.LA

MG = ¬LC.¬LB.¬LA

SG = LC.¬LB.¬LA