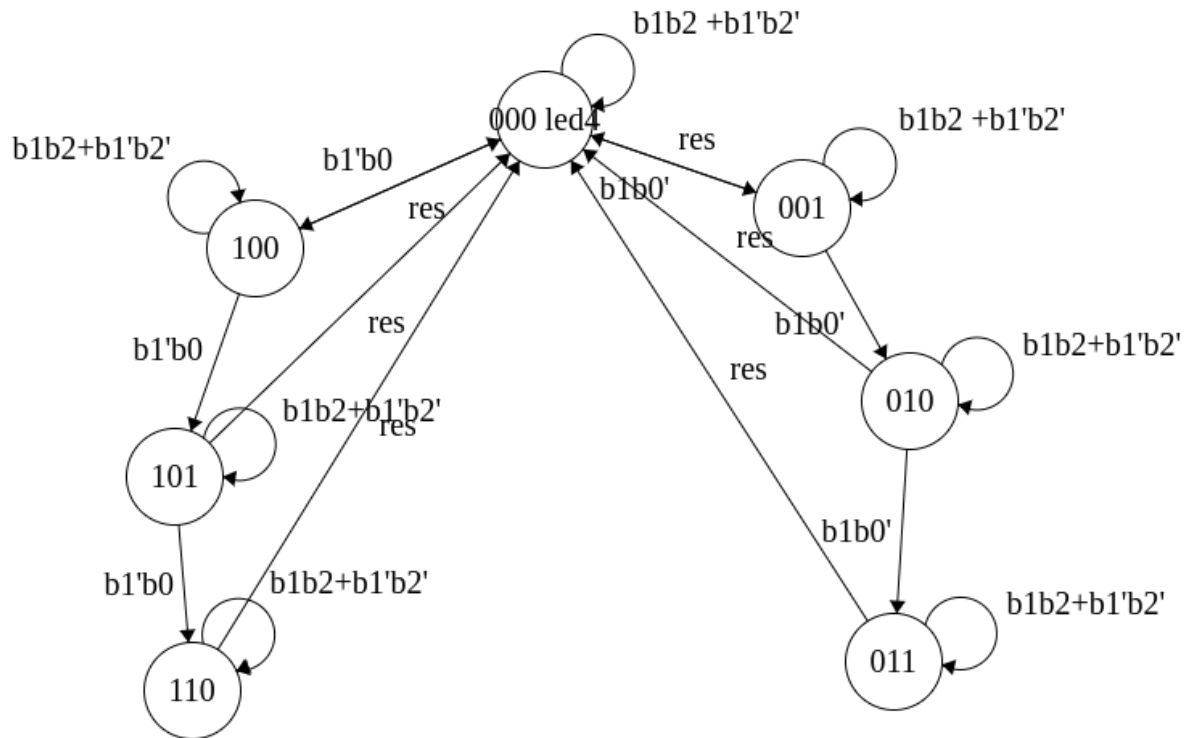
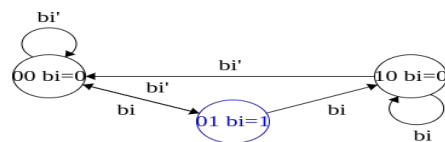


Midterm Project

State Diagram



state diagram 2



Seven Segmet Display decoder

A	B	C	D	a	b	c	d	e	f	g
0	0	0	0	1	1	1	1	1	1	0
0	0	0	1	0	1	1	0	0	0	0
0	0	1	0	1	1	0	1	1	0	1
0	0	1	1	1	1	1	1	0	0	1
0	1	0	0	0	1	1	0	0	1	1
0	1	0	1	1	0	1	1	0	1	1
0	1	1	0	1	0	1	1	1	1	1
0	1	1	1	1	1	1	0	0	0	0
1	0	0	0	1	1	1	1	1	1	1
1	0	0	1	1	1	1	1	0	1	1

Turth Table

s2	s1	s0	b1	b2	r	n2	n1	n0	l1	l2	l3	l4	l5	l6	l7	
0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0
0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0
0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0
0	0	0	1	0	1	0	0	0	0	0	0	0	1	0	0	0
0	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	0
0	0	0	1	1	1	0	0	0	0	0	0	0	1	0	0	0
0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0
0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0
0	0	1	0	1	0	0	1	0	0	0	0	0	0	1	0	0
0	0	1	0	1	1	0	0	0	0	0	0	0	1	0	0	0
0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0
0	0	1	1	0	1	0	0	0	0	0	0	0	1	0	0	0
0	0	1	1	1	0	0	0	1	0	0	0	0	0	1	0	0
0	0	1	1	1	1	0	0	0	0	0	0	0	1	0	0	0
0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0
0	1	0	0	1	0	0	1	1	0	0	0	0	0	0	1	0
0	1	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0
0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0
0	1	0	1	0	1	0	0	0	0	0	0	0	1	0	0	0
0	1	0	1	1	0	0	1	0	0	0	0	0	0	0	1	0
0	1	0	1	1	1	0	0	0	0	0	0	0	1	0	0	0
0	1	1	0	0	0	0	1	1	0	0	0	0	0	0	0	1
0	1	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0
0	1	1	0	1	0	0	1	1	0	0	0	0	0	0	0	1
0	1	1	0	1	1	0	0	0	0	0	0	0	1	0	0	0
0	1	1	1	0	0	0	1	1	0	0	0	0	0	0	0	1
0	1	1	1	0	1	0	0	0	0	0	0	0	1	0	0	0
0	1	1	1	1	0	0	1	1	0	0	0	0	0	0	0	1
0	1	1	1	1	1	0	0	0	0	0	0	0	1	0	0	0
1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0
1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0
1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0
1	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0
1	0	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0
1	0	0	1	0	1	0	0	0	0	0</						

BOOLEON EQUATION

$$N2 = \sim S1 \sim S0 B1 \sim B0 \sim R + S2 \sim B0 \sim R + S2 B1 \sim R + S2 S0 \sim R + S2 S1 \sim R$$

$$N1 = \sim S2 S0 \sim B1 B0 \sim R + \sim S2 S1 \sim R + S1 \sim B0 \sim R + S1 B1 \sim R + S2 S0 B1 \sim B0 \sim R$$

$$N0 = \sim S2 \sim S0 \sim B1 B0 \sim R + S0 \sim B1 \sim B0 \sim R + S0 B1 B0 \sim R + S1 \sim B1 B0 \sim R + S1 S0 \sim R + S2 \sim S1 \sim S0 B1 \sim B0 \sim R$$

$$L1 = S2 S1 \sim R$$

$$L2 = S2 S0 \sim R$$

$$L3 = S2 \sim S1 \sim S0 \sim R$$

$$L4 = \sim S2 \sim S1 \sim S0 \sim B0 + R + \sim S2 \sim S1 \sim S0 B1$$

$$L5 = \sim S2 \sim S1 S0 \sim R$$

$$L6 = \sim S2 S1 \sim S0 \sim R$$

$$L7 = S1 S0 \sim R$$

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