

8.1 Sensor Detector Truth Table

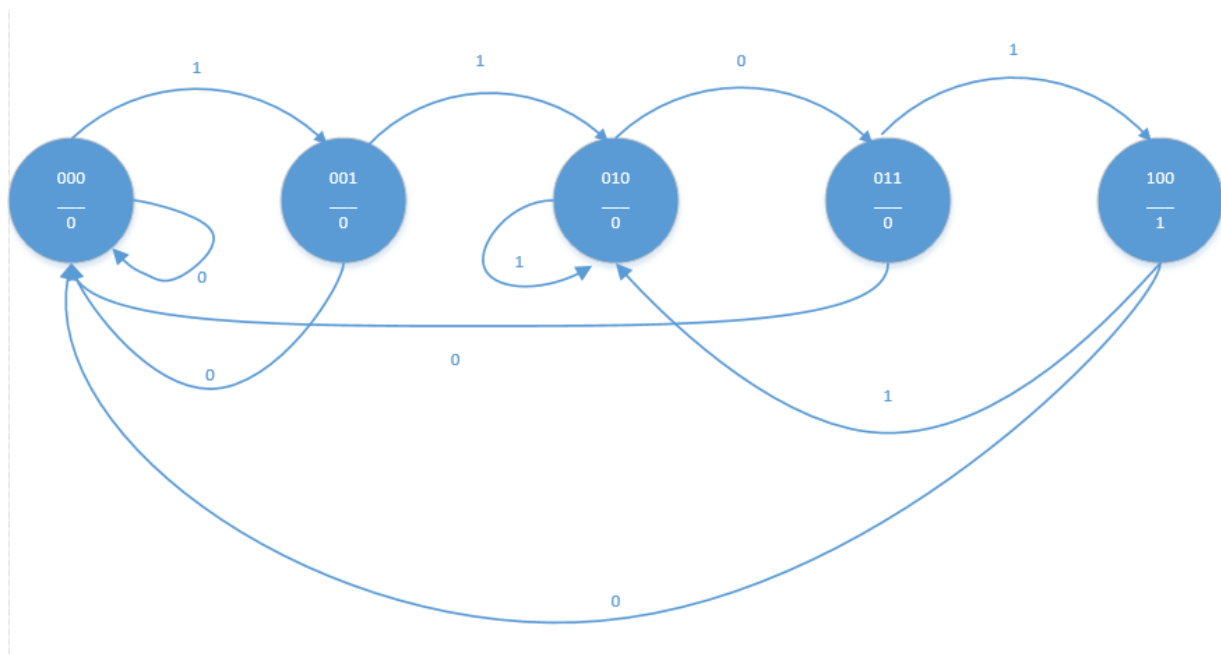
Sensor 1	Sensor 2	Sensor 3	Sensor 4	Output
0	0	0	0	0
0	0	0	1	0
0	0	1	0	0
0	0	1	1	0
0	1	0	0	0
0	1	0	1	1
0	1	1	0	1
0	1	1	1	1
1	0	0	0	1
1	0	0	1	1
1	0	1	0	1
1	0	1	1	1
1	1	0	0	1
1	1	0	1	1
1	1	1	0	1
1	1	1	1	1

8.1 Sensor Detector K-Map and PoS

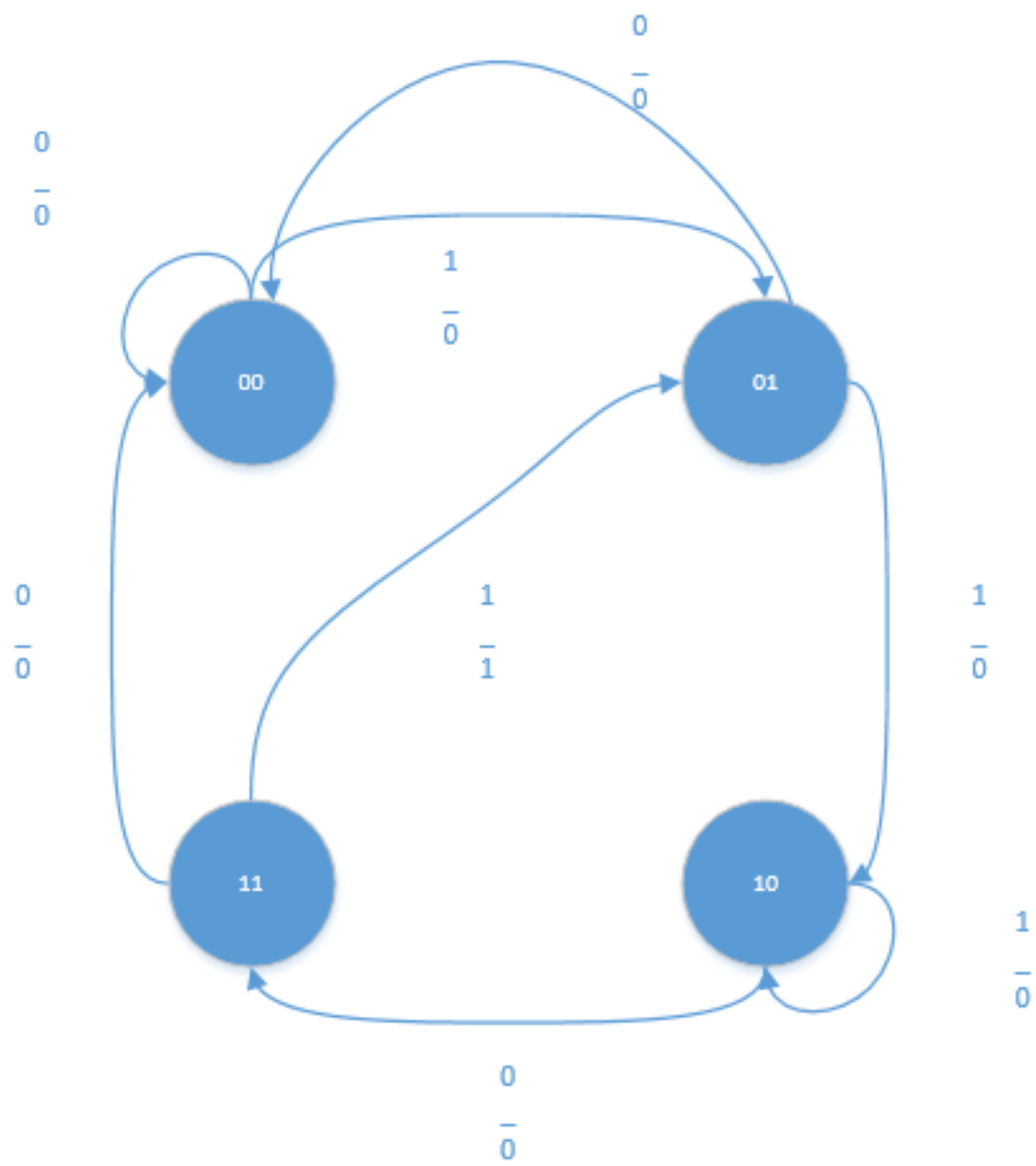
		S1'		S1	
S3'	0	1	1	1	S4'
	0	0	1	1	
S3	0	1	1	1	S4
	0	1	1	1	S4'
	S2'	S2	S2'		

$$\text{Output} = S1 + S2*S4' + S2*S3$$

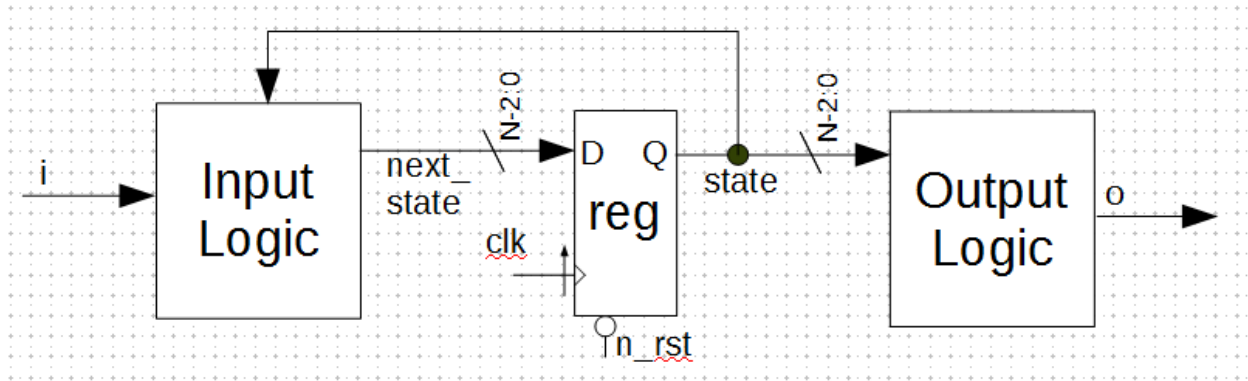
8.2 Moore



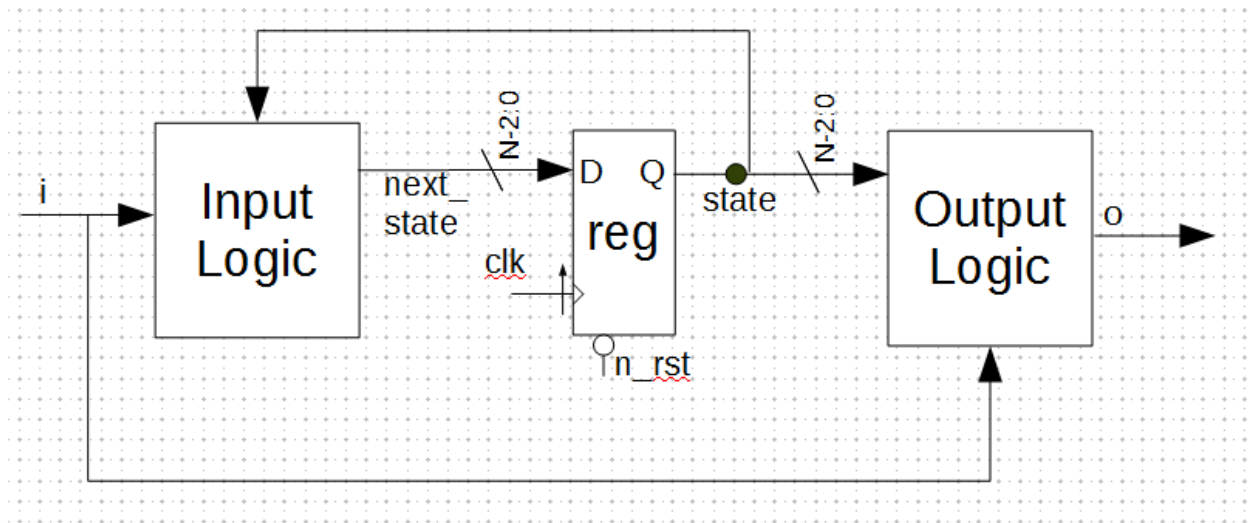
8.2 Mealy



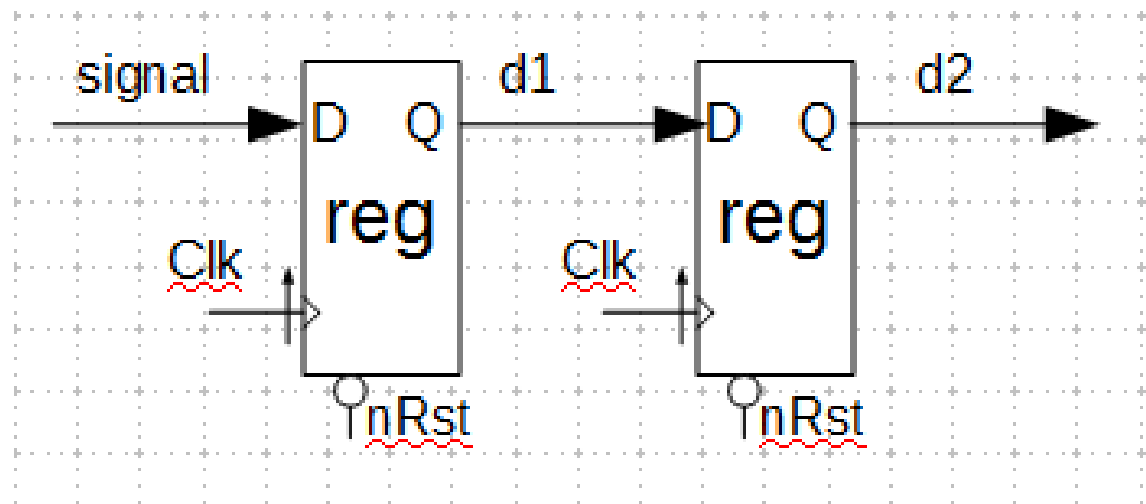
8.2 Moore RTL



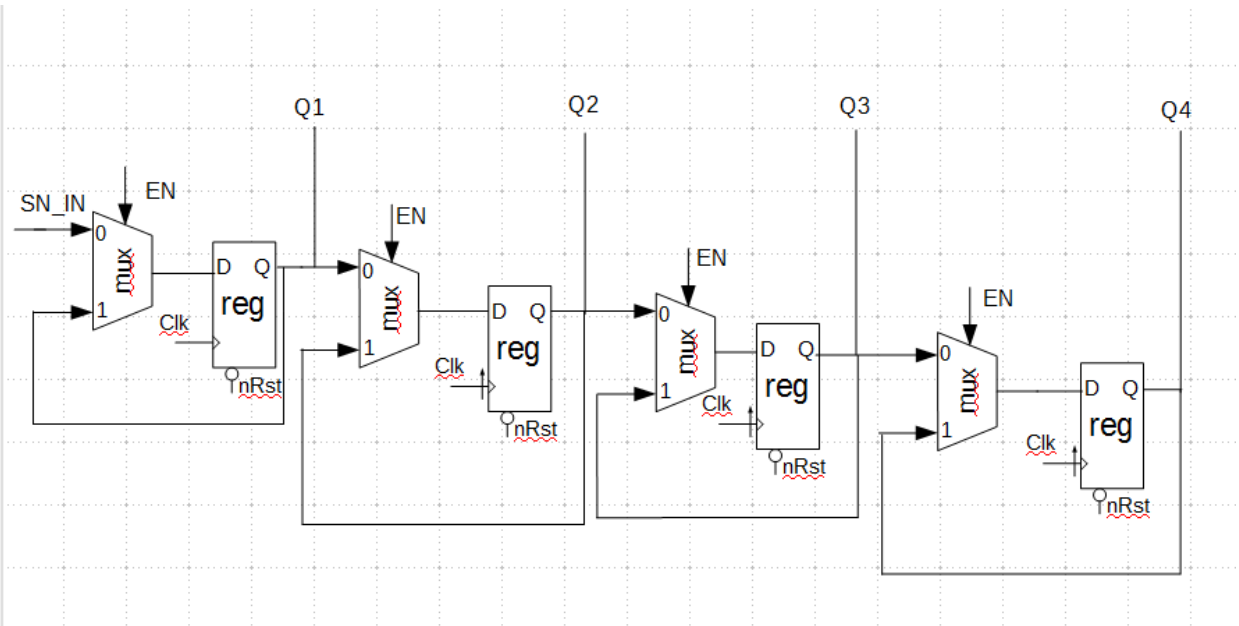
8.2 Mealy RTL



8.3.1 Synchronizer



8.3.2 Serial to Parallel Shift Register



8.3.3 Parallel to Serial Shift Register

