19CSE19281

DIGITAL CIRCUITS AND SYSTEMS

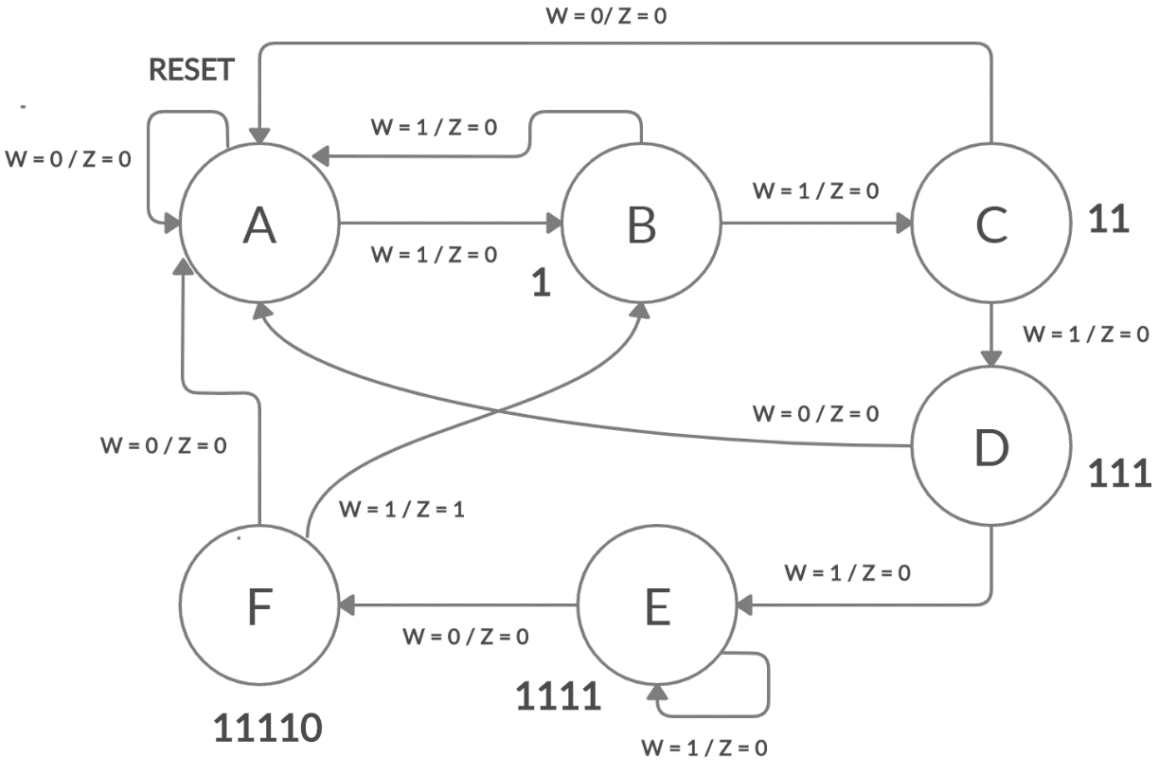
LAB PROJECT

GROUP - J

S Abhishek - AM.EN.U4CSE19147
Rahan Manoj - AM.EN.U4CSE19144
Harsha Sathish - AM.EN.U4CSE19123
Arvind Kumar - AM.EN.U4CSE19109
Rohit Menon - AM.EN.U4CSE19146

DESIGN A MEALY FSM DETECTOR FOR THE SEQUENCE 111101 AND IMPLEMENT USING TINKER CAD

STATE DIAGRAM



STATE TABLE

	NEXT STATE		OUTPUT	
	W = 0	W = 1	W = 0	W = 1
A	A	B	0	0
B	A	C	0	0
C	A	D	0	0
D	A	E	0	0
E	F	E	0	0
F	A	B	0	1

STATE ASSIGNED TABLE

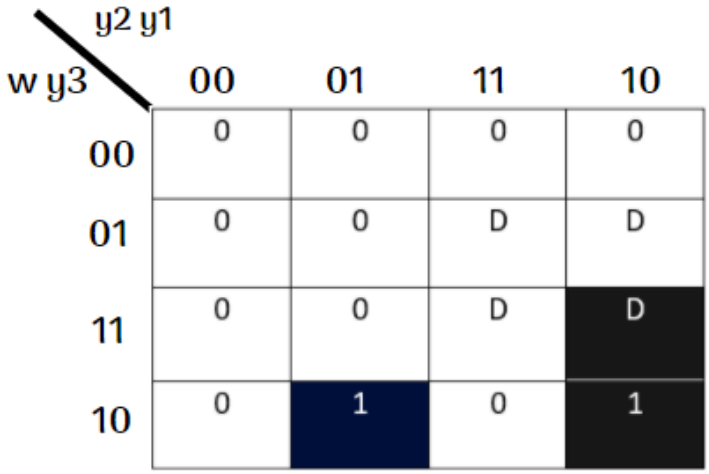
	PRESENT STATE			NEXT STATE						OUTPUT	
				W = 0			W =1			W = 0	W = 1
	Y3	Y2	Y1	Y3	Y2	Y1	Y3	Y2	Y1	Z	Z
A	0	0	0	0	0	0	0	0	1	0	0
B	0	0	1	0	0	0	0	1	0	0	0
C	0	1	0	0	0	0	0	1	1	0	0
D	0	1	1	0	0	0	1	0	0	0	0
E	1	0	0	1	0	1	1	0	0	0	0
F	1	0	1	0	0	0	0	0	1	0	1

KMAP FOR Y1

w y3 \ y2 y1	00	01	11	10
00	0	0	0	0
01	1	0	D	D
11	0	1	D	D
10	1	0	0	1

$$Y1 = w' \; y3 \; y1' + y1 \; w \; y3 + y1' \; w \; y3'$$

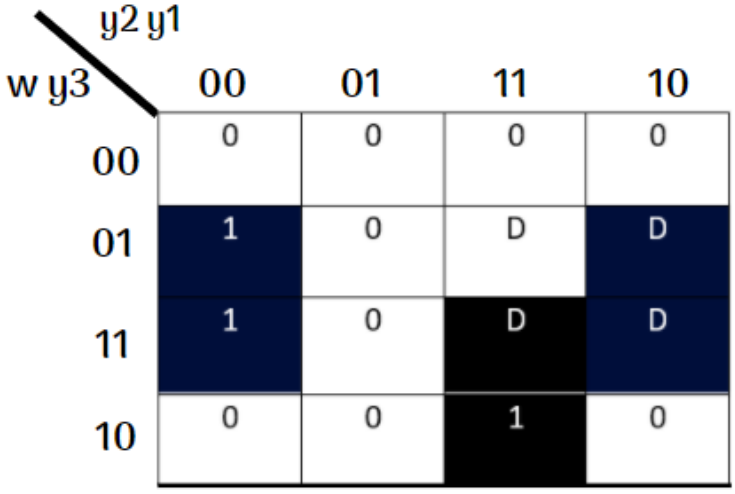
KMAP FOR Y2



w y3 \ y2 y1	00	01	11	10
00	0	0	0	0
01	0	0	D	D
11	0	0	D	D
10	0	1	0	1

$$Y2 = y1\ y2'\ y3'\ w + w\ y2\ y1'$$

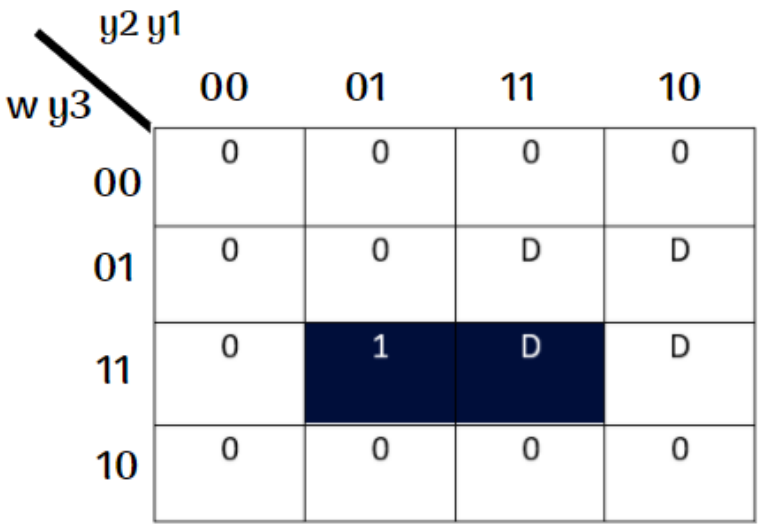
KMAP FOR Y3



w y3 \ y2 y1	00	01	11	10
00	0	0	0	0
01	1	0	D	D
11	1	0	D	D
10	0	0	1	0

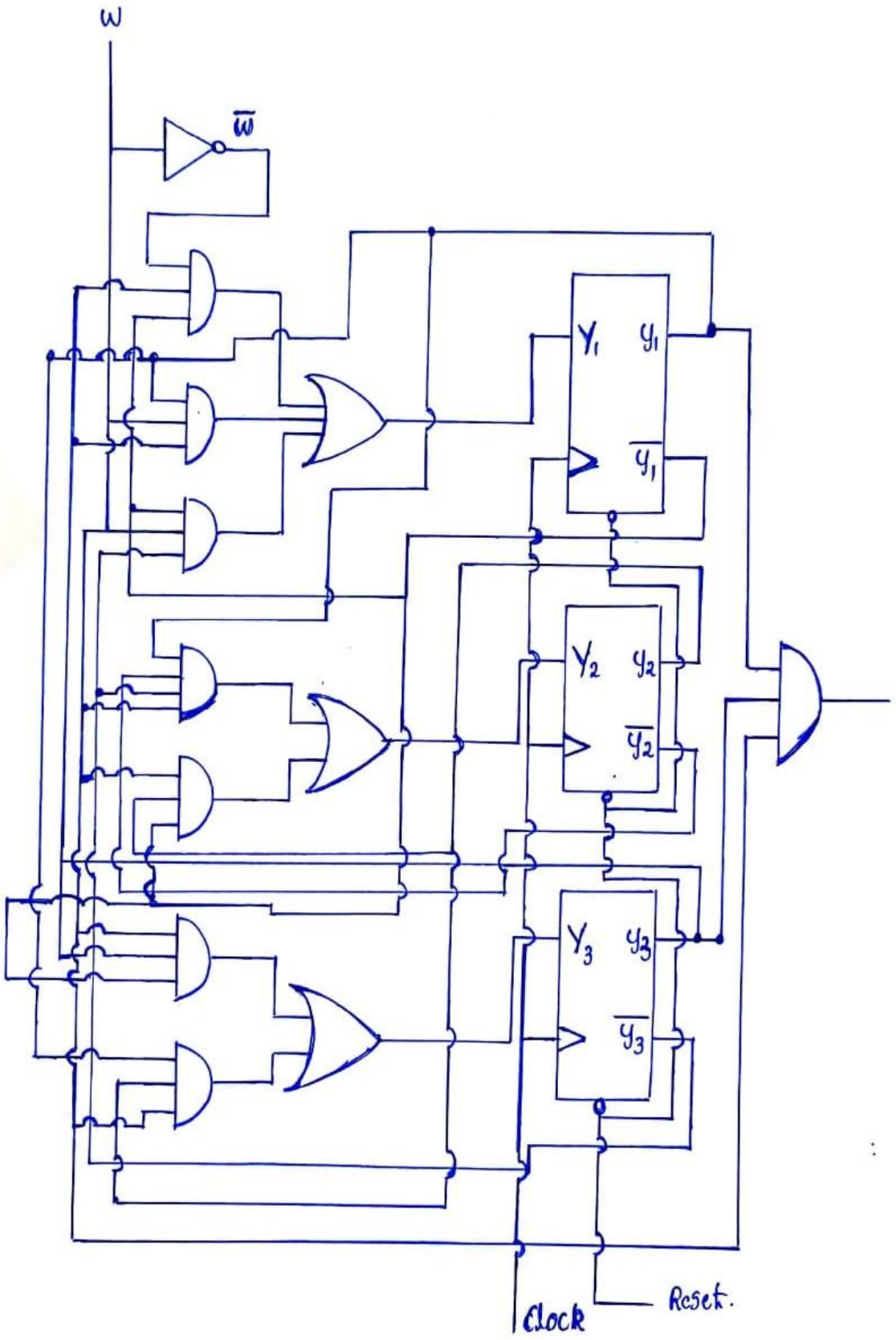
$$Y3 = y1'\ y3 + w\ y1\ y2$$

KMAP FOR Z

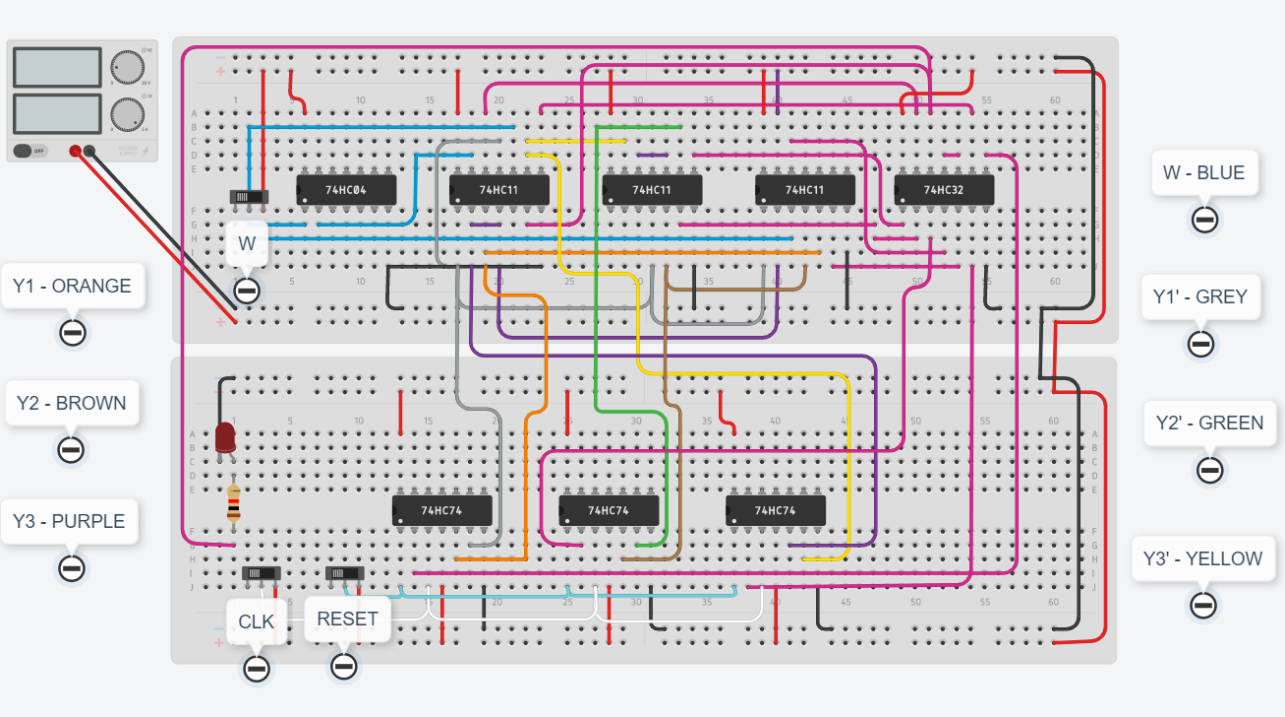


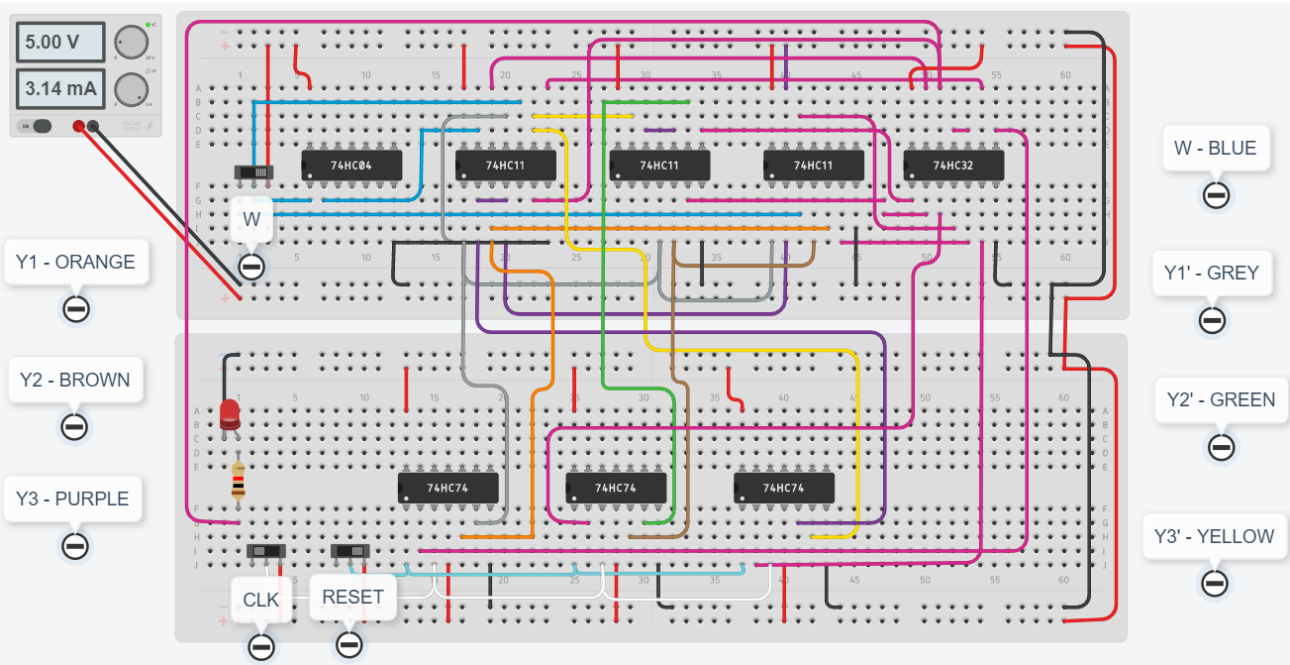
$$Z = w\ y3\ y1$$

CIRCUIT



TINKER CAD IMPLEMENTATION





RESULT

- The logic circuit was implemented in accordance with the theory and output was obtained successfully by the glow of LED.