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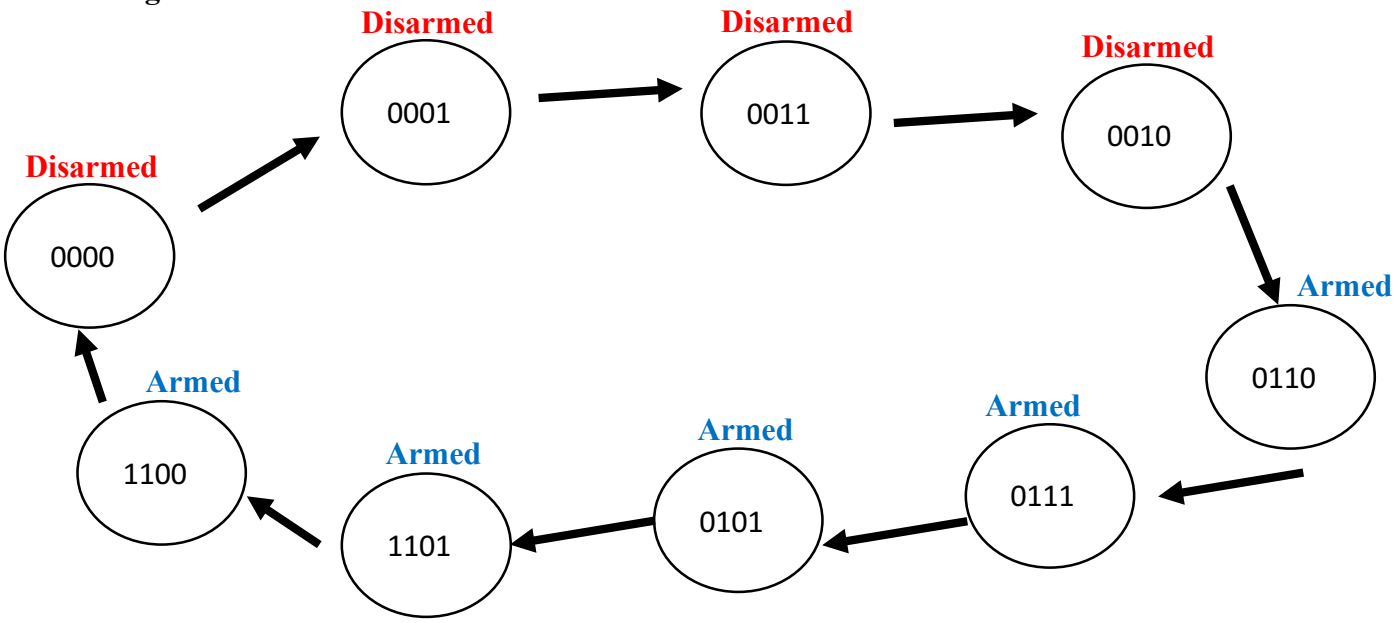
Lab 5:

State Diagram:



State Table:

F0	F1	F2	F3	F0	F1	F2	F3
0	0	0	0	0	0	0	1
0	0	0	1	0	0	1	1
0	0	1	1	0	0	1	0
0	0	1	0	0	1	1	0
0	1	1	0	0	1	1	1
0	1	1	1	0	1	0	1
0	1	0	1	1	1	0	1
1	1	0	1	1	1	0	0
1	1	0	0	0	0	0	0

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State Table LED:

F0	F1	F2	F3	LED
0	0	0	0	0
0	0	0	1	0
0	0	1	1	0
0	0	1	0	0
0	1	1	0	1
0	1	1	1	1
0	1	0	1	1
1	1	0	1	1
1	1	0	0	1

K-Maps:

F0:

	F0'F1'	F0'F1	F0F1	F0F1'
F2'F3'	0	X	0	X
F2'F3	0	1	1	X
F2F3	0	0	X	X
F2F3'	0	0	X	X

→ F0 = F1F2'F3

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F1:

	F0'F1'	F0'F1	F0F1	F0F1'
F2'F3'	0	X	0	X
F2'F3	0	1	1	X
F2F3	0	1	X	X
F2F3'	1	1	X	X

→ F1 = F2F3' + F3F1

F2:

	F0'F1'	F0'F1	F0F1	F0F1'
F2'F3'	0	X	0	X
F2'F3	1	0	0	X
F2F3	1	0	X	X
F2F3'	1	1	X	X

→ F2 = F1'F3 + F2F3'

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F3:

	F0'F1'	F0'F1	F0F1	F0F1'
F2'F3'	**1**	**X**	**0**	**X**
F2'F3	**1**	**1**	**0**	**X**
F2F3	**0**	**1**	**X**	**X**
F2F3'	**0**	**1**	**X**	**X**

→ F3 = F0'F1 + F2'F1' + F2F1

LED:

	F0'F1'	F0'F1	F0F1	F0F1'
F2'F3'	**0**	**X**	**1**	**X**
F2'F3	**0**	**1**	**1**	**X**
F2F3	**0**	**1**	**X**	**X**
F2F3'	**0**	**1**	**X**	**X**

→ LED = F1

Equations:

- F0 = F1F2'F3
- F1 = F2F3' + F3F1
- F2 = F1'F3 + F2F3'
- F3 = F0'F1 + F2'F1' + F2F1
- LED = F1

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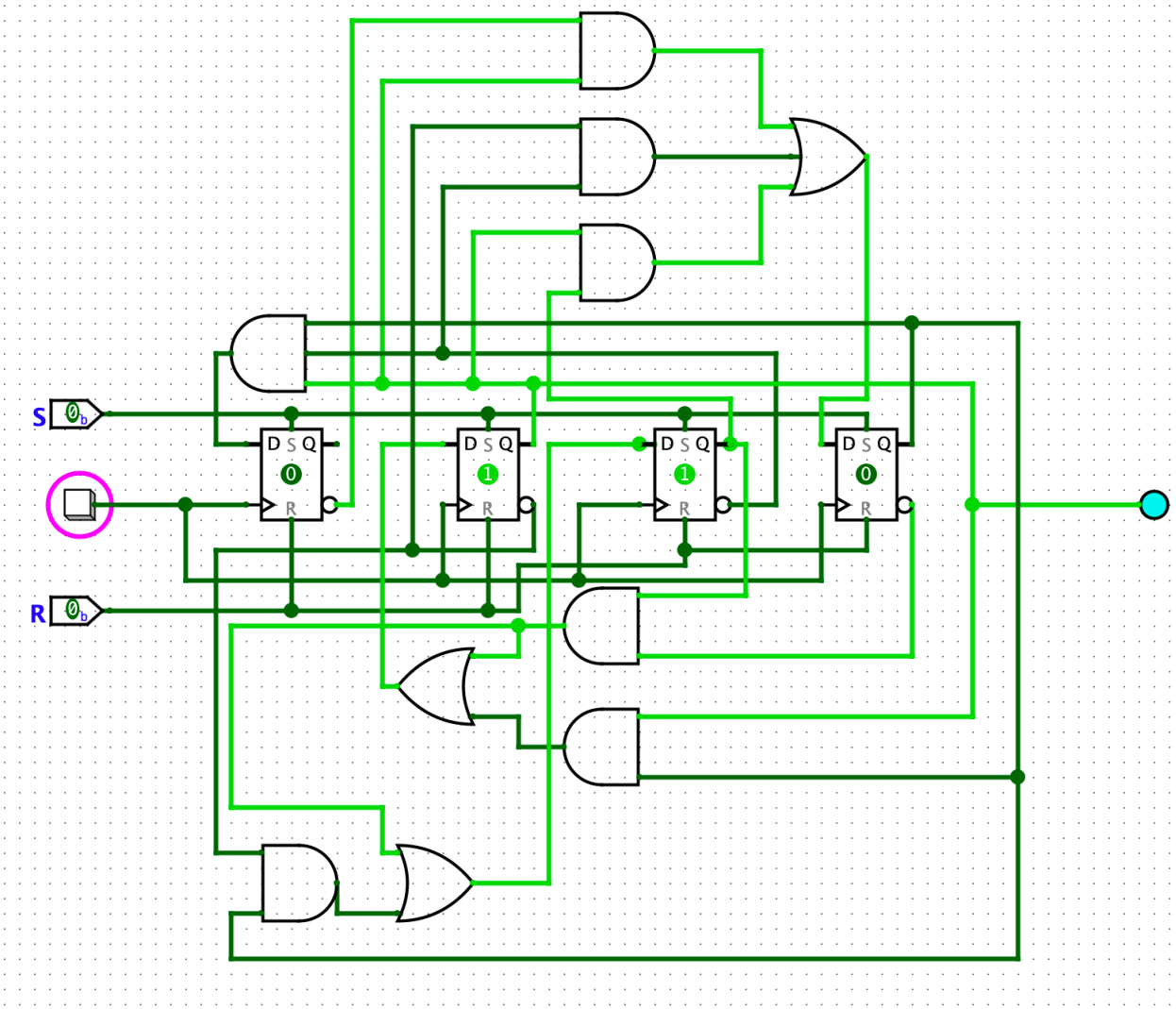
Screen Shot Of Circuit Diagram When The Output LED Just Became “Armed”: