

Lab7

$$055 = 1010001111$$

$$656 = 1010010000$$

$$751 = 1011101111$$

$$757 = 1011110000$$

A	B	C	D	
14	18	17	16	15 13 12 11 10 ↑
10	1	0	0	0 1 1 1 1 hi
10	1	0	0	1 0 0 0 0 low
10	1	1	0	1 1 1 1 1
10	1	1	1	1 1 0 0 0 0 hi ↓

A	B	C	D	E	F	G
1	0	1	0	0	1	0
0	0	1	0	0	0	1
0	0	1	0	0	1	0
0	0	1	0	0	1	1

$$489 = 0111101001$$

~~$$440 = 111101010$$~~

487 654 732 10

$$490 = 0111101010$$

~~$$491 = 0111101011$$~~

655 - 750

(01)

9	8	7	6	5	4	3	2	1	0	↑
654 = 1	0	1	0	0	0	1	1	1	0	hi
655 = 1	0	1	0	0	0	1	1	1	1	low
750 = 1	0	1	1	0	1	1	1	0		
751 = 1	0	1	1	1	0	1	1	1	1	hi

row	489 = 19 18 17 16 15 14 13 12 11 10
	490 = 0 1 1 1 1 0 1 0 1 0

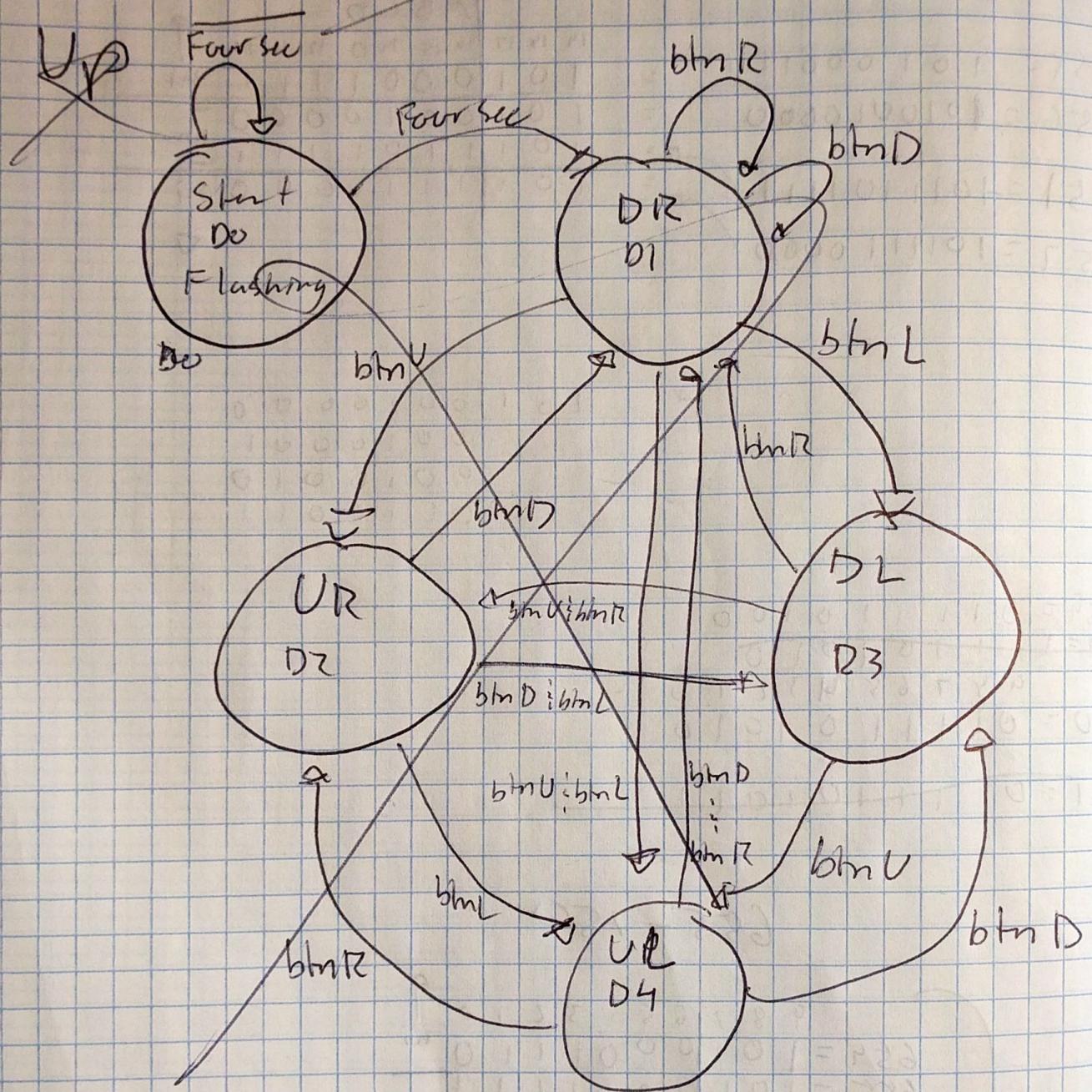
ignore X

A B C D E F G
654 3 2 1 0

~~$$(01) 749 = 1 1 0 0 0 1 1 1 1$$~~

~~$$row 524 = 1 0 0 0 0 0 1 1 0 0$$~~

Lab 7 ball state machine



Lab 7 : 8903

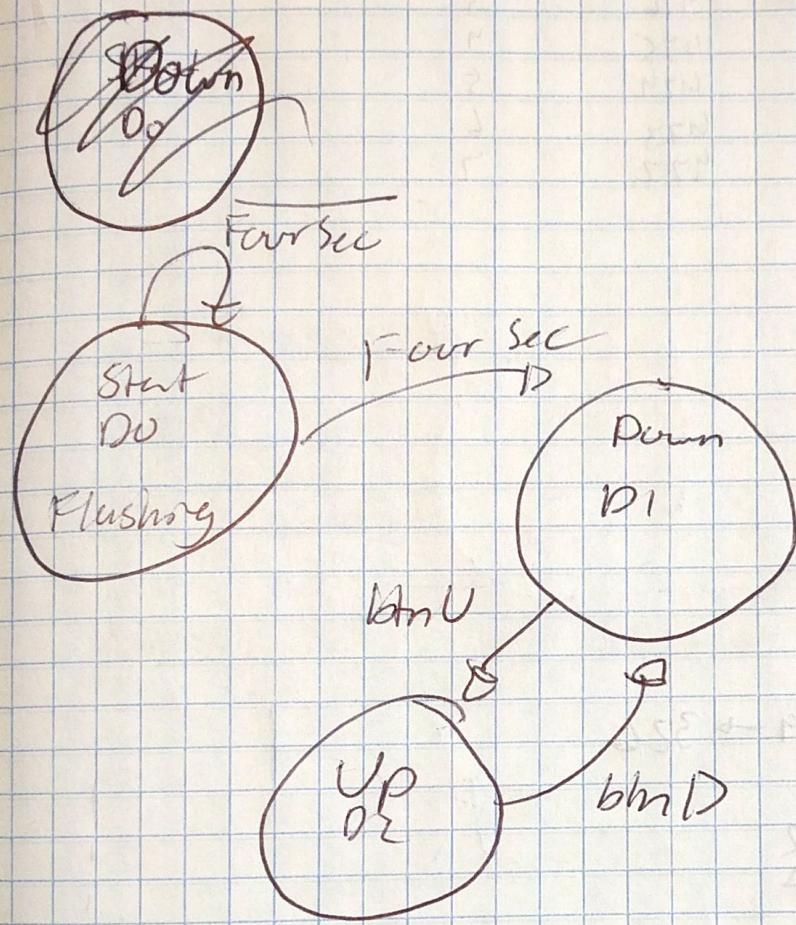
1 Dec 2017

Hilbamus

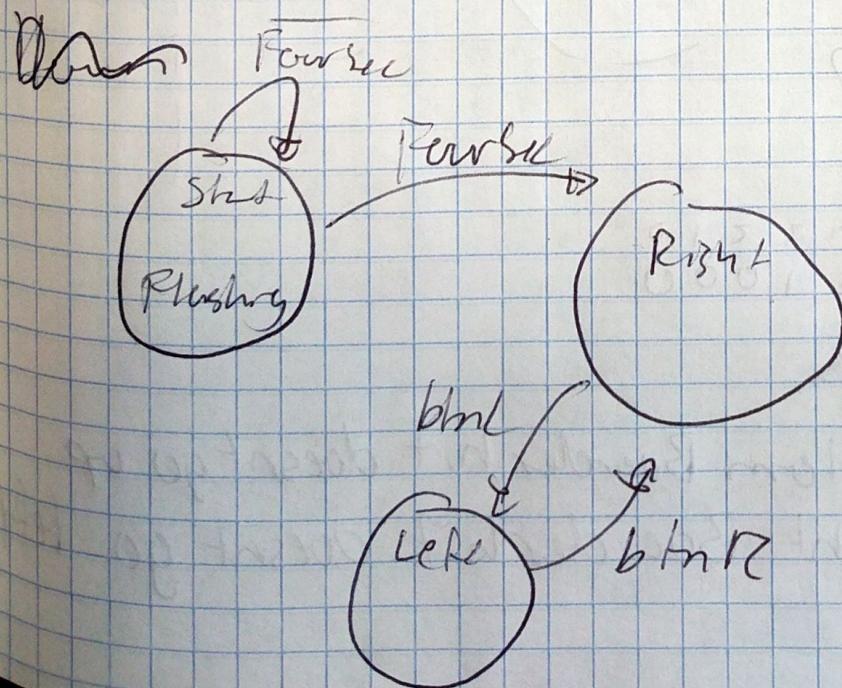
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Lab7 ball State Machine

Up



Left



blue boarcler

(0)	(0)	Row	
1	639	0	0
2	638	1	1
3	637	2	2
4	636	3	3
5	635	4	4
6	634	5	5
7	633	6	6
8	632	7	7
	63		

p
fasser

311 \leftrightarrow 319 \rightarrow 326

232
 ↑
 240
 ↓
 247

632 9 8 7 6 5 4 3 2 1 0
 1 0 0 1 1 1 0 0 0

Bottom Boarcler hit doesn't go up
 Right Boarcler hit doesn't go left

0 1 2 3 4 5 6 7

$UP = 1$ > count[2]
 $down = 0$

horiz + vert +



DR

~~CR + CL = 0~~

~~CR = 1 CL = 1~~

~~CU = 1 CD = 1~~

0	0
01	1
10	2
11	3
100	4
101	5
110	6
111	7
1000	

Count & Tie if no down

~~11110000~~

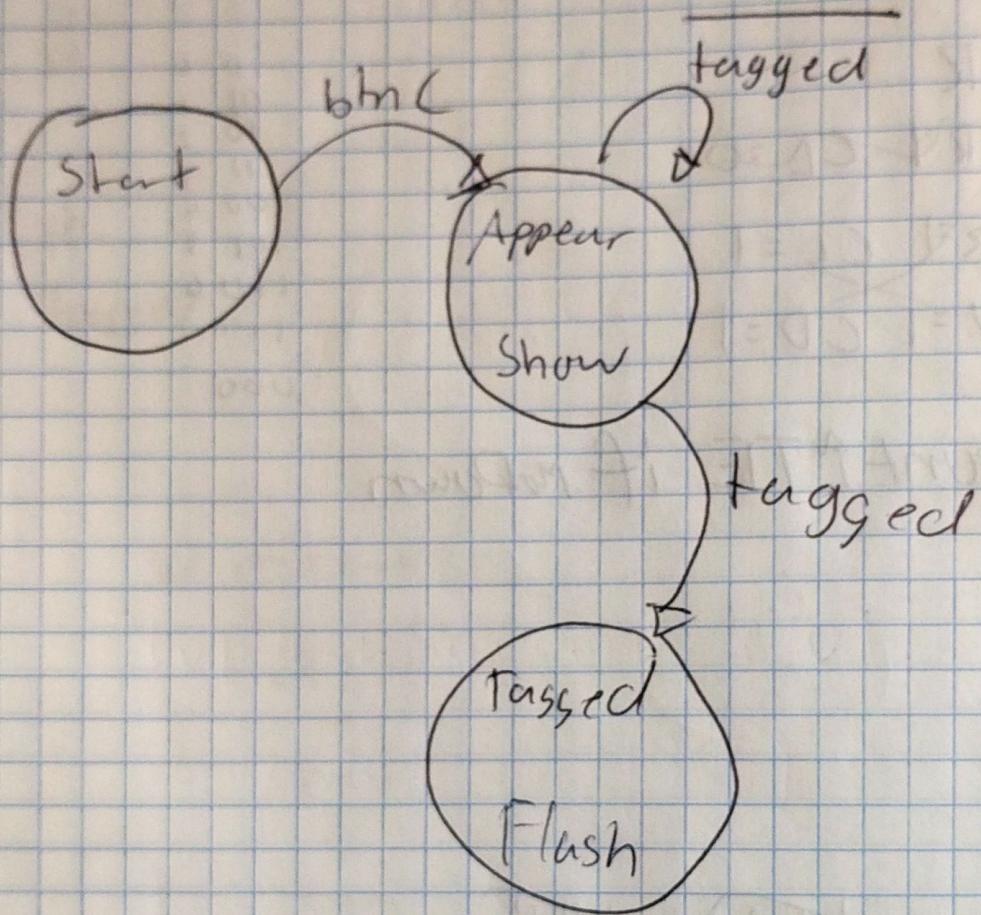
240 11110000 FO

60 111100 BC

876543210
471 11101011
9876543210
631 1001110111

top = 8

$$\begin{aligned}\text{bottom} &= \text{top} + 8 + 16 + \text{sw}[6:4] * 32 \\ &\approx 24 + (\text{sw}[6:4] * 32)\end{aligned}$$



18

If $\text{~nTimeCounter} > 142 \text{ and } \text{~nFlashTargState}[0] = 1$;
 $\text{~nFlashTargState}[0] \leftarrow \text{~nFlashTargState}[1]$

Then reload

timer ✓
bars ✓

Reset

Score ✓

14170
If

$(\text{~nFlashOut}[0] = 1 \text{ and } \text{~nFlashOut}[3:1] = 1) \text{ and } \text{~nTimeCounter} < 142$

Then

until bnt /

Flash Boarder from 4 sec

Then

reload
timer
bars

Reset Score