Lab 6: Q2

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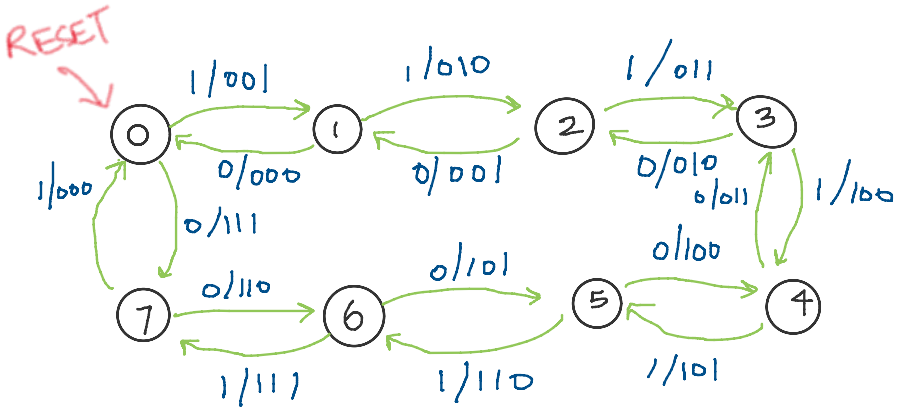

$M = \{I, O, S, S_0, \delta, \lambda\}$

Input (up) := $\{0, 1\}$

States (S) := 3-bit strings

Output (O) := 3-bit strings

$\delta := (\delta_2, \delta_1, \delta_0)$

$\lambda := (\lambda_2, \lambda_1, \lambda_0)$

We are maintaining FSM s.t. state we are currently in is the output.

$\therefore \quad \delta_2 = s_2 \; ; \quad \delta_1 = s_1 \; ; \quad \delta_0 = s_0 \; ;$

$S_0 = \{000\}$

KMAPS:-

$\delta_2(s_2, s_1, s_0, up) := \bar{s}_2 \bar{s}_1 \bar{s}_0 \bar{u} + \bar{s}_2 s_1 s_0 u + s_2 s_1 \bar{s}_0 + s_2 \bar{s}_0 u + s_2 \bar{s}_1 s_0 + s_2 s_0 \bar{u}$

s_2s_1 / s_0u	00	01	11	10
00	1	0	1	0
01	0	0	1	1
11	0	1	0	1
10	0	0	1	1

$\delta_1(s_2, s_1, s_0, up) := \bar{s}_1 \bar{s}_0 \bar{u} + s_1 \bar{s}_0 u + \bar{s}_1 s_0 u + s_1 s_0 \bar{u}$

s_2s_1 / s_0u	00	01	11	10
00	1	0	0	1
01	0	1	1	0
11	1	0	0	1
10	0	1	1	0

$\delta_0(s_2, s_1, s_0, w) := \overline{s_0}$

$s_2 s_1$ / $s_0 w$	00	01	11	10
00	1	1	1	1
01	1	1	1	1
11	0	0	0	0
10	0	0	0	0