Saad Ahmed
661925946

11/25/14
ahmeds7

CoCo HW #12

(1) Start : 000
Got X : 001
XX : 010
XXY : 011
XXYX : 100
XXYXX : 101

input X;Y; timer
timer: 0 = < 1 minute
1 = ≥ 1 minute
X: 0 = X missed
1 = X got
Y: 0 = Y missed
1 = Y got

Input X Y T

State	000	001	010	011	100	101	110	111	unlock
000	000	000	000	000	001	000	000	000	0
001	000	000	000	000	010	000	000	000	0
010	000	000	011	000	000	000	000	000	0
011	000	000	000	000	100	000	000	000	0
100	000	000	000	000	101	000	000	000	0
101	000	000	000	000	000	000	000	000	1

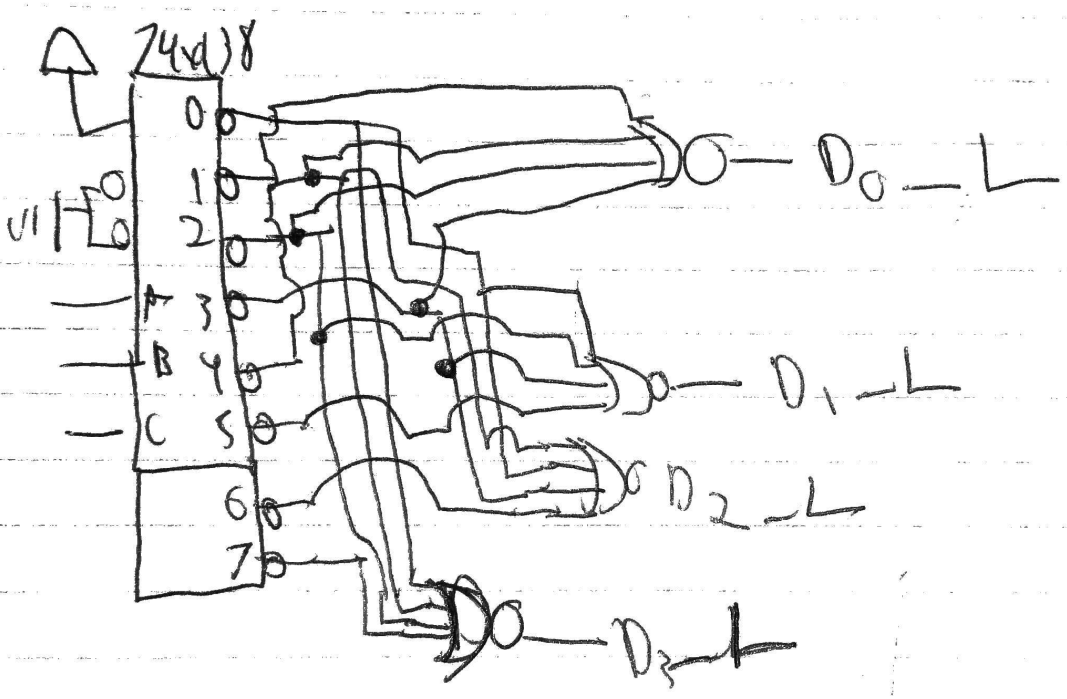
Q^{1+} Q^{2+} Q^{3+}

assumptions: Use D flip flops. Timer value is an input into the machine and only hits 1 if 2 minute passes. At start T is 0.

(2) 74x49 : 16 x 7 ROM
74x139 : 16 x 8 ROM
74x153 : 16 x 2 ROM
74x257 : 64 x 3 ROM
74x381 : 64 x 4 ROM
74x682 : 2^{16} x 2 ROM

(3) They use ROM. Because you can access it right from startup. Boot information is probably stored here. Once the boot process is finished you can then move stuff to RAM.

(4)



Swati Ahmed HW # 12 Resub

① Design:

Input 1: X=0 ; Y=1 Alarm = 0: off | =1: on

Timer = 0: valid Timer=1: invalid V=1: unlocked | =0: close

States:

S_0: start S_5: XXYXX S_9: Alarm

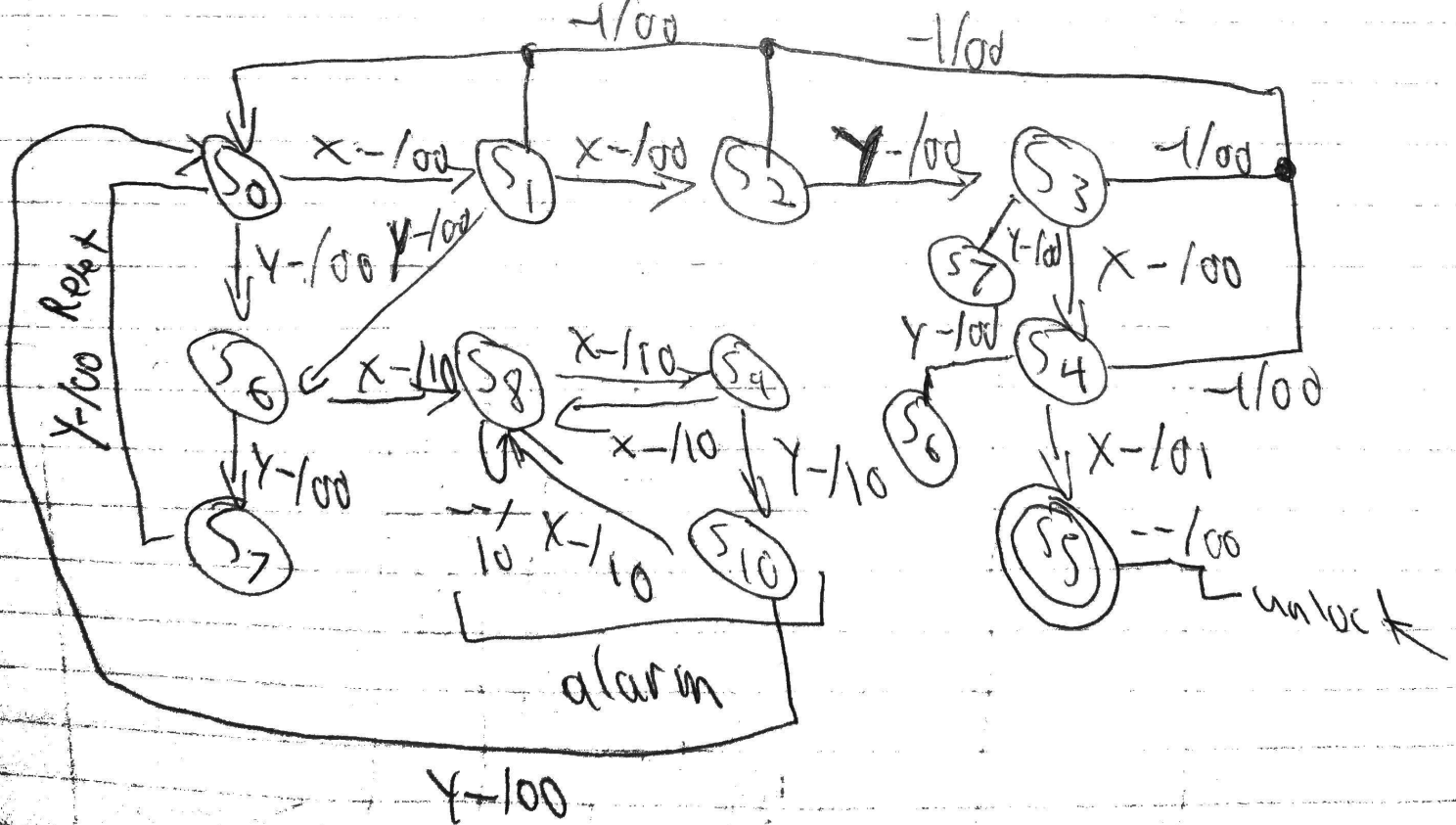
S_1: X S_6: Y S_a: Alarm Y

S_2: XX S_7: YY S_{10}: Alarm YY

S_3: XXY Reset: YYY

S_4: XXYX

Mealy Machine:



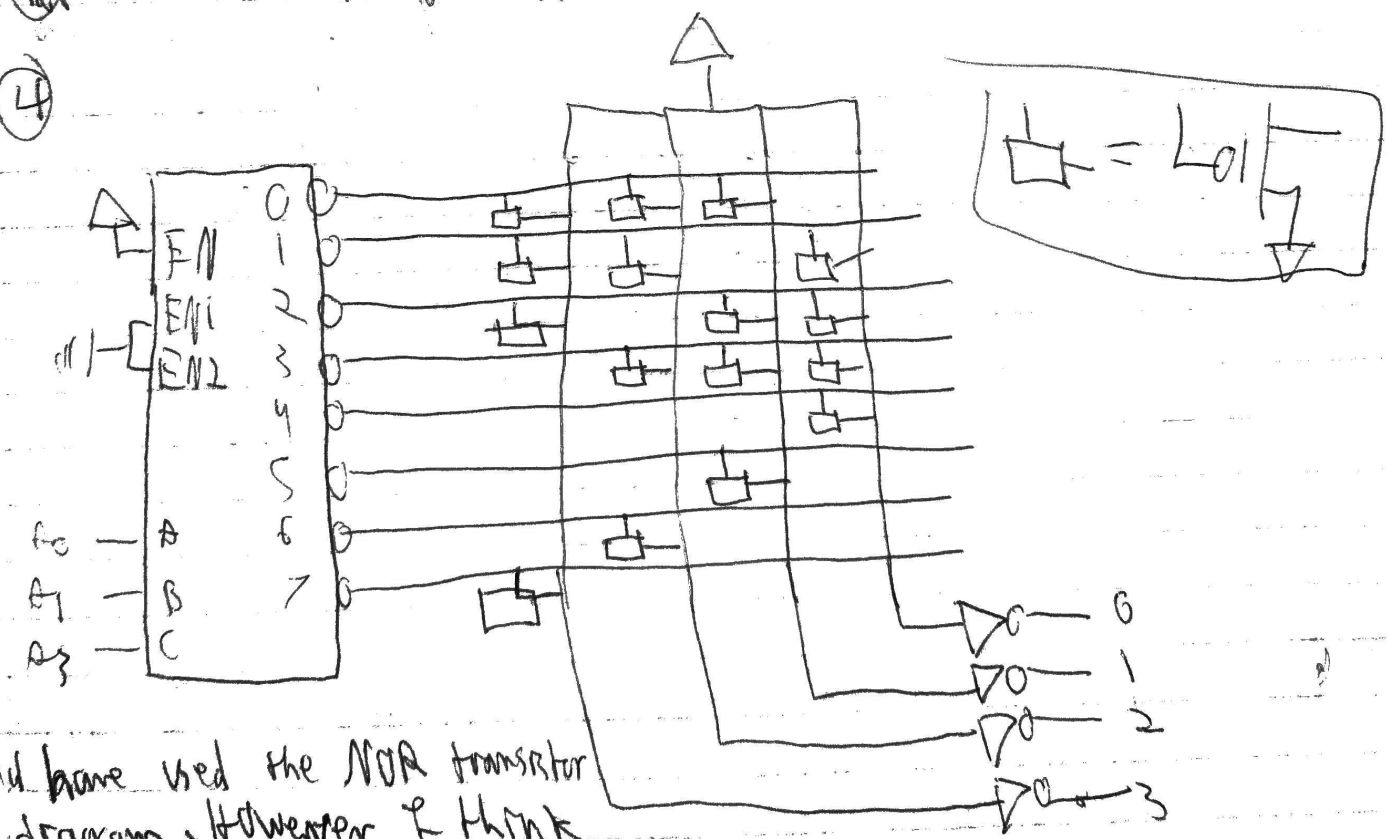
* I had a similar design originally but I didn't include the alarm. Also I see why I should have decided on a Mealy Machine due to the timer. I also drew the wrong kind of diagram.

② 74x49 4input 1out 16x1 ROM
74x139 4 in 8out 16x8 ROM
74x153 10 in 2out 1024x2 ROM
74x257 9 in 4out 512x4 ROM
74x381 12 in 8out 4096x6 ROM
74x682 16 in 2out 65536x2 ROM

* I had the first two correct. I counted the rest of the inputs incorrectly but I got the outputs right though.

③ CPU Cache is also known as the stack. The stack is constantly written to and read from. Therefore it cannot be ROM which is Read only. It has to be RAM.
* I got this wrong because I forgot that CPU has to be written to

④



* I should have used the NOR transistor in my diagrams. However I think I grouped the correctly for each output D.