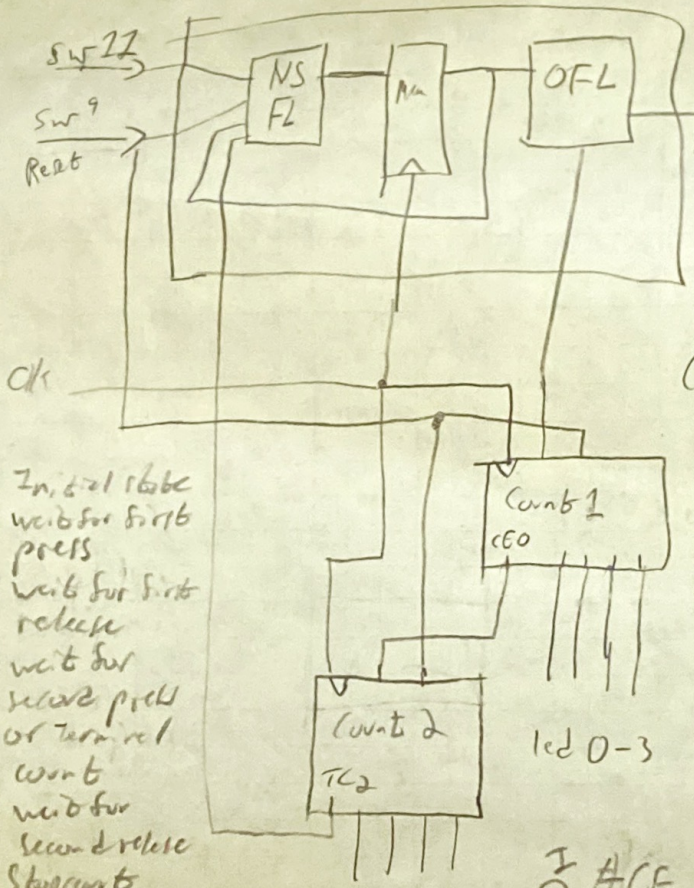
Design

clk @ 100hz

CD4CE

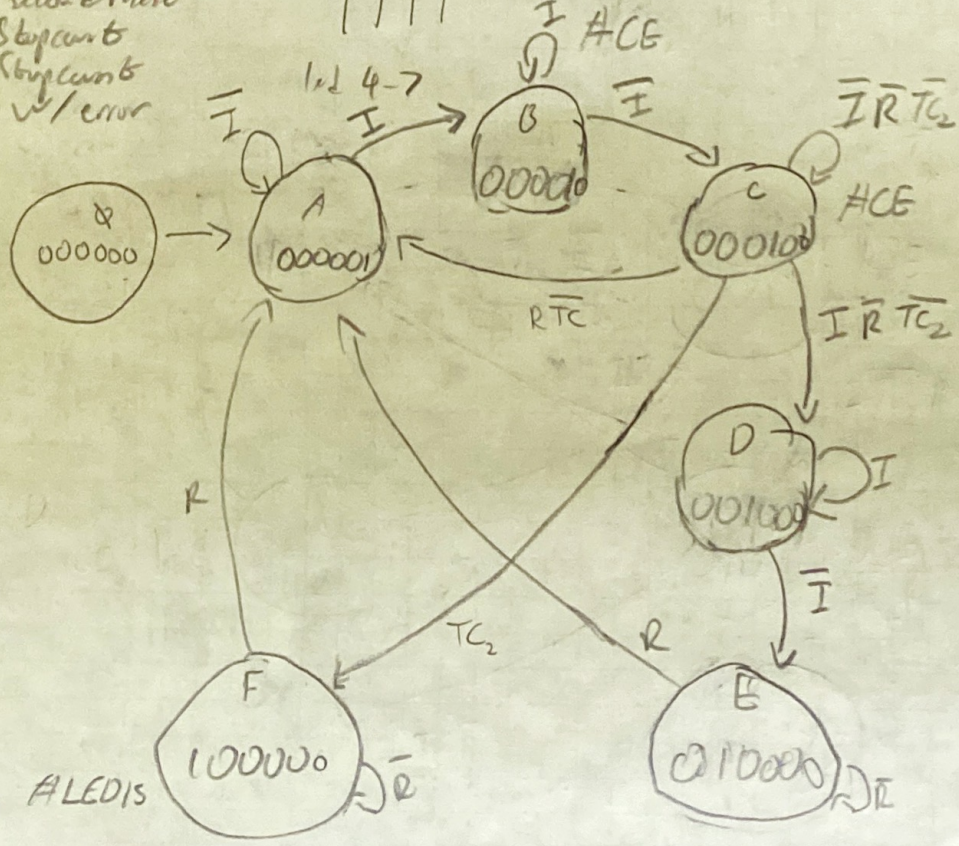


States
wait for first press
wait for second press
reset
stop counter no error
stop counter w/ error

sw[7] = I (input)
sw[9] = R (reset)
terminal count = TC_2 (from second counter)

counters used: CD4CE
4-bit cascadable BCD counter w/ clock enable & Asynchronous clear.

A: wait for first press
B: wait for first release
C: wait for second press or terminal count
D: wait for second release
E: Stop count
F: Stop count w/ error



Inputs			Present State						Next State					
I	R	T_{c_2}	F	E	D	C	B	A	D_F	D_E	D_D	D_C	D_B	D_A
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
0	0	1	0	0	0	0	0	1	0	0	0	0	0	1
1	0	0	0	0	0	0	0	1	0	0	0	0	1	0
1	0	1	0	0	0	0	0	1	0	0	0	0	1	0
0	0	0	0	0	0	0	1	0	0	0	0	1	0	0
0	0	0	0	0	0	0	1	0	0	0	0	1	0	0
0	1	0	0	0	0	0	1	0	0	0	0	1	0	0
0	0	1	0	0	0	0	1	0	0	0	0	1	0	0
1	0	0	0	0	0	0	1	0	1	0	0	0	0	0
1	0	0	0	0	0	1	0	0	0	0	1	0	0	0
0	0	0	0	0	0	1	0	0	0	0	1	0	0	0
0	0	1	0	0	0	1	0	0	0	0	1	0	0	0
0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
0	0	1	0	0	0	1	0	1	0	0	0	0	0	0
0	0	0	0	0	0	1	1	0	0	0	0	0	0	0
0	0	1	0	0	0	1	1	0	0	0	0	0	0	0
0	0	0	0	0	0	1	1	1	0	0	0	0	0	0
0	0	1	0	0	0	1	1	1	0	0	0	0	0	0
0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
0	1	0	0	0	1	0	0	0	0	0	0	0	0	1
0	1	1	0	0	1	0	0	0	0	0	0	0	0	1
0	0	0	0	0	1	0	0	1	0	0	0	0	1	0
0	0	1	0	0	1	0	0	1	0	0	0	0	1	0
0	1	0	0	0	1	0	0	1	0	0	0	0	1	0
0	1	1	0	0	1	0	0	1	0	0	0	0	1	0
0	0	0	0	0	1	0	1	0	0	0	0	0	1	1
0	0	1	0	0	1	0	1	0	0	0	0	0	1	1
0	1	0	0	0	1	0	1	0	0	0	0	0	1	1
0	1	1	0	0	1	0	1	0	0	0	0	0	1	1
0	0	0	0	0	1	0	1	1	0	0	0	0	1	1
0	0	1	0	0	1	0	1	1	0	0	0	0	1	1
0	1	0	0	0	1	0	1	1	0	0	0	0	1	1
0	1	1	0	0	1	0	1	1	0	0	0	0	1	1
0	0	0	0	0	1	1	0	0	0	0	0	0	1	1
0	0	1	0	0	1	1	0	0	0	0	0	0	1	1
0	1	0	0	0	1	1	0	0	0	0	0	0	1	1
0	1	1	0	0	1	1	0	0	0	0	0	0	1	1
0	0	0	0	0	1	1	0	1	0	0	0	0	1	1
0	0	1	0	0	1	1	0	1	0	0	0	0	1	1
0	1	0	0	0	1	1	0	1	0	0	0	0	1	1
0	1	1	0	0	1	1	0	1	0	0	0	0	1	1
0	0	0	0	0	1	1	1	0	0	0	0	0	1	1
0	0	1	0	0	1	1	1	0	0	0	0	0	1	1
0	1	0	0	0	1	1	1	0	0	0	0	0	1	1
0	1	1	0	0	1	1	1	0	0	0	0	0	1	1
0	0	0	0	0	1	1	1	1	0	0	0	0	1	1
0	0	1	0	0	1	1	1	1	0	0	0	0	1	1
0	1	0	0	0	1	1	1	1	0	0	0	0	1	1
0	1	1	0	0	1	1	1	1	0	0	0	0	1	1
1	0	0	0	0	0	0	0	0	1	0	0	0	0	0
1	0	1	0	0	0	0	0	0	0	0	0	0	0	1
1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
1	1	1	0	0	0	0	0	0	0	0	0	0	0	1

$D_A = \bar{F}\bar{E}\bar{D}\bar{C}\bar{B}\bar{A} + \bar{I}A + R\bar{T}_{c_2}C + RE + RF$

$D_B = IA + IB$

$D_C = \bar{I}B + \bar{I}R\bar{T}_{c_2}C$

$D_D = IR\bar{T}_{c_2}C + ID$

$D_E = \bar{I}D + \bar{R}E$

$D_F = T_{c_2}C + \bar{R}F$

$CE = C + D$

$LEDIS = F$

$D_A = \bar{F}\bar{E}\bar{D}\bar{C}\bar{B}\bar{A} + \bar{I}A + R(\bar{T}_{c_2}C + E + F)$

$D_B = I(A + B)$

$D_C = \bar{I}(B + R\bar{T}_{c_2}C)$

$D_D = I(R\bar{T}C + D)$

$D_E = T_{c_2}C + \bar{R}F$

0	P23
1	P24
2	N21
3	N22
4	M24
5	M25
6	R26
7	P26