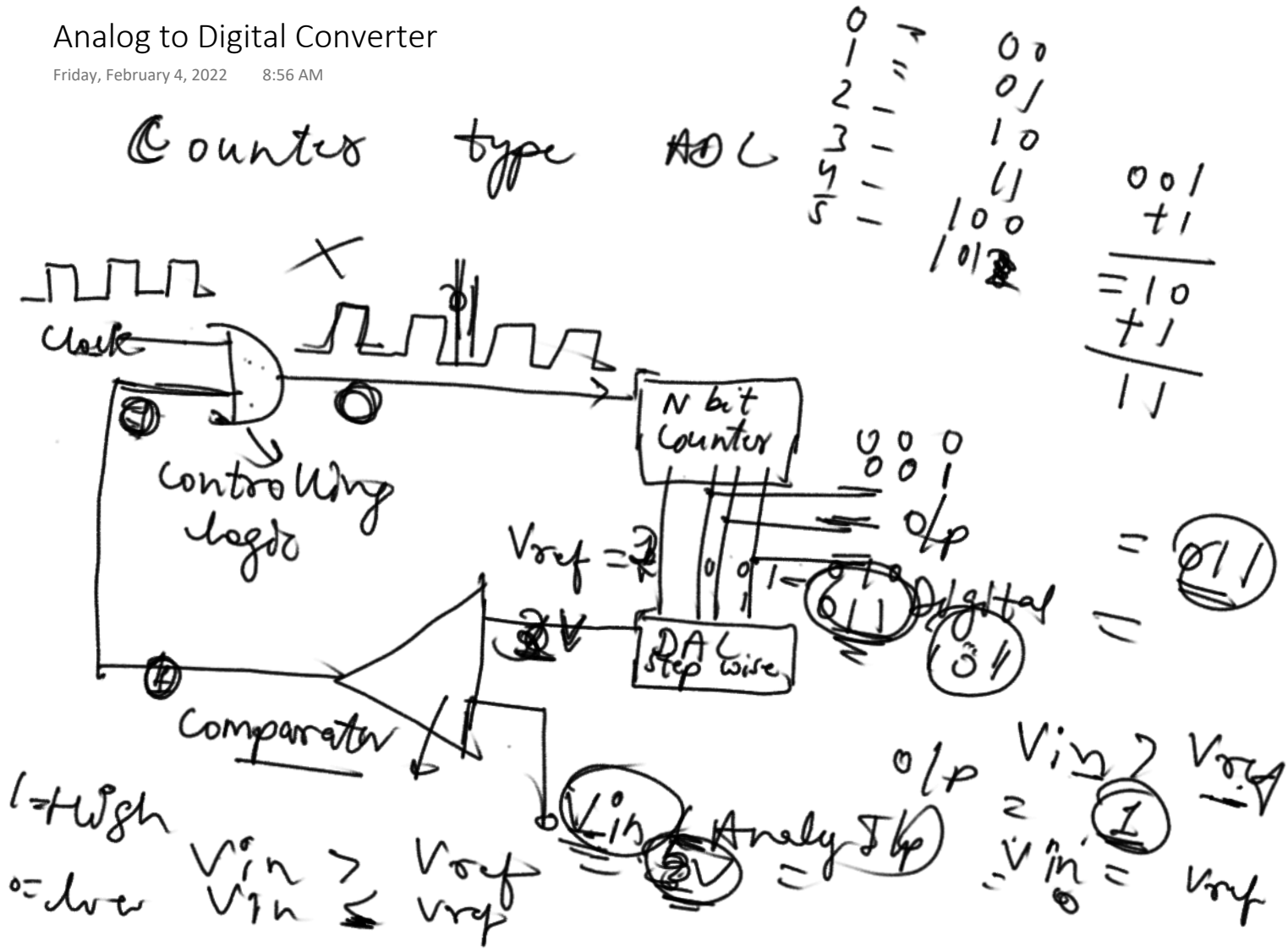
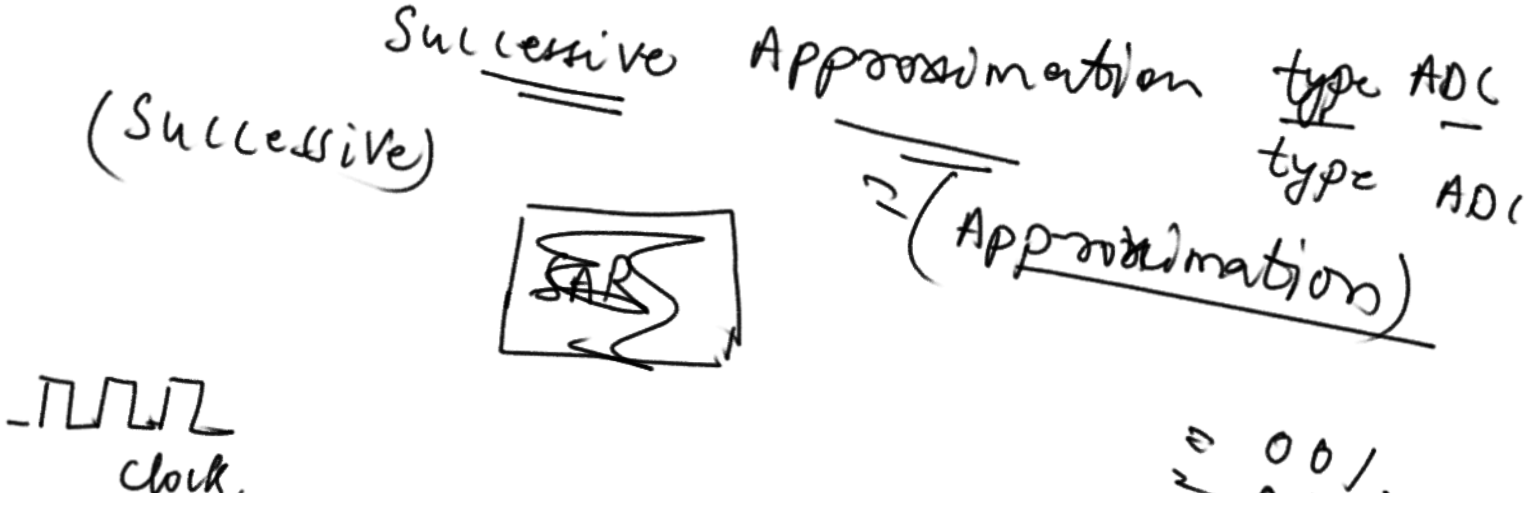
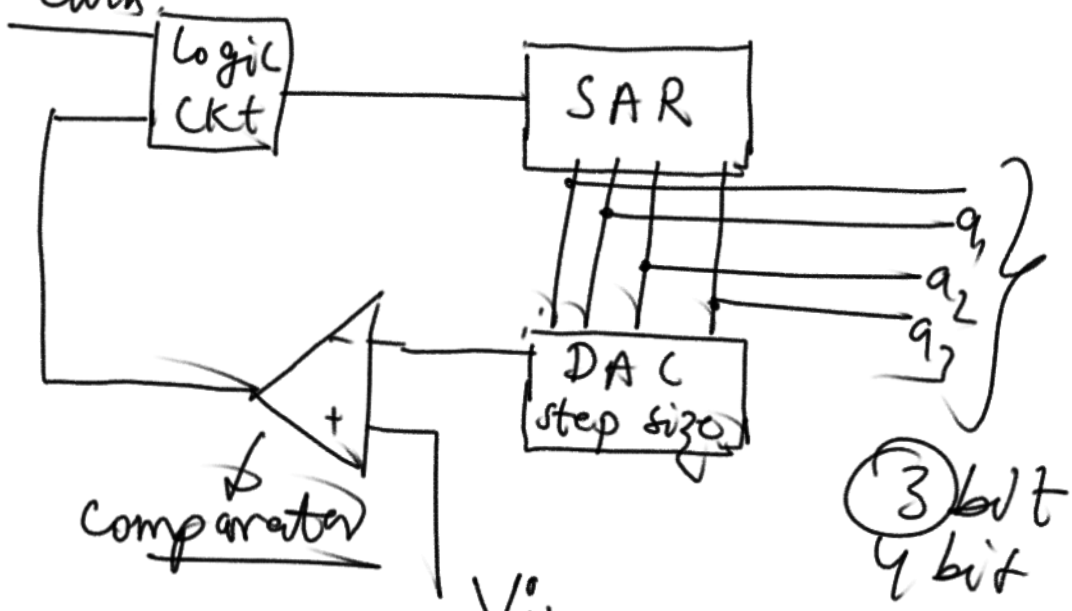
Analog to Digital Converter

Friday, February 4, 2022 8:56 AM







= 001 / 010 — (2)

(3) bit
4 bit $a_1\ a_2\ q_3\ q_4$
$= a_1\ a_2\ q_3$
MSB LSB

Set (1) Reset 0

3 bit

SAR = 1
= 100
= 1000

100 → 110

$V_{in} > V_d$ → Set your next bit

$V_{in} < V_d$ → Set bit is going to reset & will set next bit.

100

000 = 0
111 = 7

010

$V_{in} > V_d$ → 110

$V_{in} > V_d$ → 110

$V_{in} < V_d$ → 110 = 6

$V_{in} > V_d$ → 111 = 7

$V_{in} > V_d$ → 101 = 5

Vin > V4
110
Vin < V4
101
Vin > V2
101 = 5
100
Vin < V2
100 = 4
4
Vin > V3
011
011 = 3
3
Vin < V3
010
010 = 2
Vin < V4
010
001
Vin > V1
001 = 1
Vin < V1
000 = 0
Vin < 3 V
Vin < V3 < 80