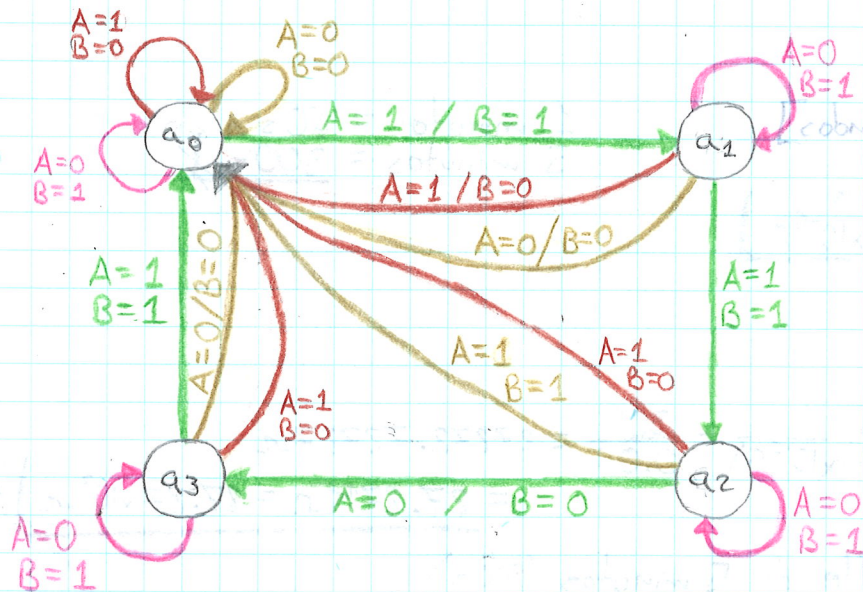


Sim. #7: Control de Entrada/Salida (FSM Mealy)



Truth Table for outputs Q_1 and Q_0 :

State	Q_1	Q_0
a_0	0	0
a_1	0	1
a_2	1	0
a_3	1	1

$A=1, B=0 \rightarrow A \text{ y } B \rightarrow \text{ON}$
 $A=0, B=1 \rightarrow A \text{ y } B \rightarrow \text{OFF}$

"Contraseña": AABA

	A	B	Q ₁	Q ₀	Next	Q ₁	Q ₀	J ₁	K ₁	J ₀	K ₀	S
0	0	0	0	0	0	0	0	0	X	0	X	0
1	0	0	0	1	0	0	0	0	X	X	1	0
2	0	0	1	0	1	1	0	X	0	1	X	0
3	0	0	1	1	0	0	0	X	1	X	1	0
4	0	1	0	0	0	0	0	0	X	0	X	0
5	0	1	0	1	0	1	0	0	X	X	0	0
6	0	1	1	0	1	0	0	X	0	0	X	0
7	0	1	1	1	1	1	0	X	0	X	0	0
8	1	0	0	0	0	0	0	0	X	0	X	0
9	1	0	0	1	0	0	0	0	X	X	1	0
10	1	0	1	0	0	0	0	X	1	0	X	0
11	1	0	1	1	0	0	0	X	1	X	1	0
12	1	1	0	0	0	1	0	0	X	1	X	0
13	1	1	0	1	1	0	0	1	X	X	1	0
14	1	1	1	0	0	0	0	X	1	0	X	0
15	1	1	1	1	0	0	0	X	1	X	1	1

Truth Table for J_1 and K_1 :

AB	J_1	K_1
00	0	X
01	0	X
11	0	X
10	0	X

Truth Table for J_0 and K_0 :

AB	J_0	K_0
00	0	X
01	0	X
11	0	X
10	0	X

$J_1 = ABQ_0$
 $K_1 = A + BQ_0$
 $J_0 = AB\bar{Q}_1 + \bar{A}\bar{B}Q_1$
 $K_0 = A + B$
 $S = ABQ_0Q_1$

Truth Table for J_0 and K_0 (highlighted):

AB	J_0	K_0
00	0	X
01	0	X
11	0	X
10	0	X

Truth Table for J_0 and K_0 (highlighted):

AB	J_0	K_0
00	0	X
01	0	X
11	0	X
10	0	X

Valor de activación para el temporizador

Temporalizador

$$T = 1.1 \cdot R \cdot C = [\text{segundos}]$$

$$T = 5 \text{ min} = 5(60 \text{ s}) = 300 \text{ s}$$

$$C = 10\,000 \mu\text{F} = 10\,000 \times 10^{-6} \text{ F}$$

$$1 \text{ minuto} = 60 \text{ s}$$

$$5 \text{ minutos} = 300 \text{ s}$$

$$T = 1.1 \cdot R \cdot C$$

↓

$$R = \frac{T}{1.1 \cdot C} = \frac{300 \text{ s}}{1.1(10\,000 \times 10^{-6} \text{ F})} = \frac{300}{0.011} = 27272.72727 \Omega$$

$$= 27.27 \text{ K}\Omega = 27.27 \times 10^3 \Omega$$

Para tener un monoestable de 5 minutos (300s)
es necesario tener un capacitor de 10 000 μF
y una resistencia de 27.27 K Ω para nuestro
circuito monoestable con el 555.