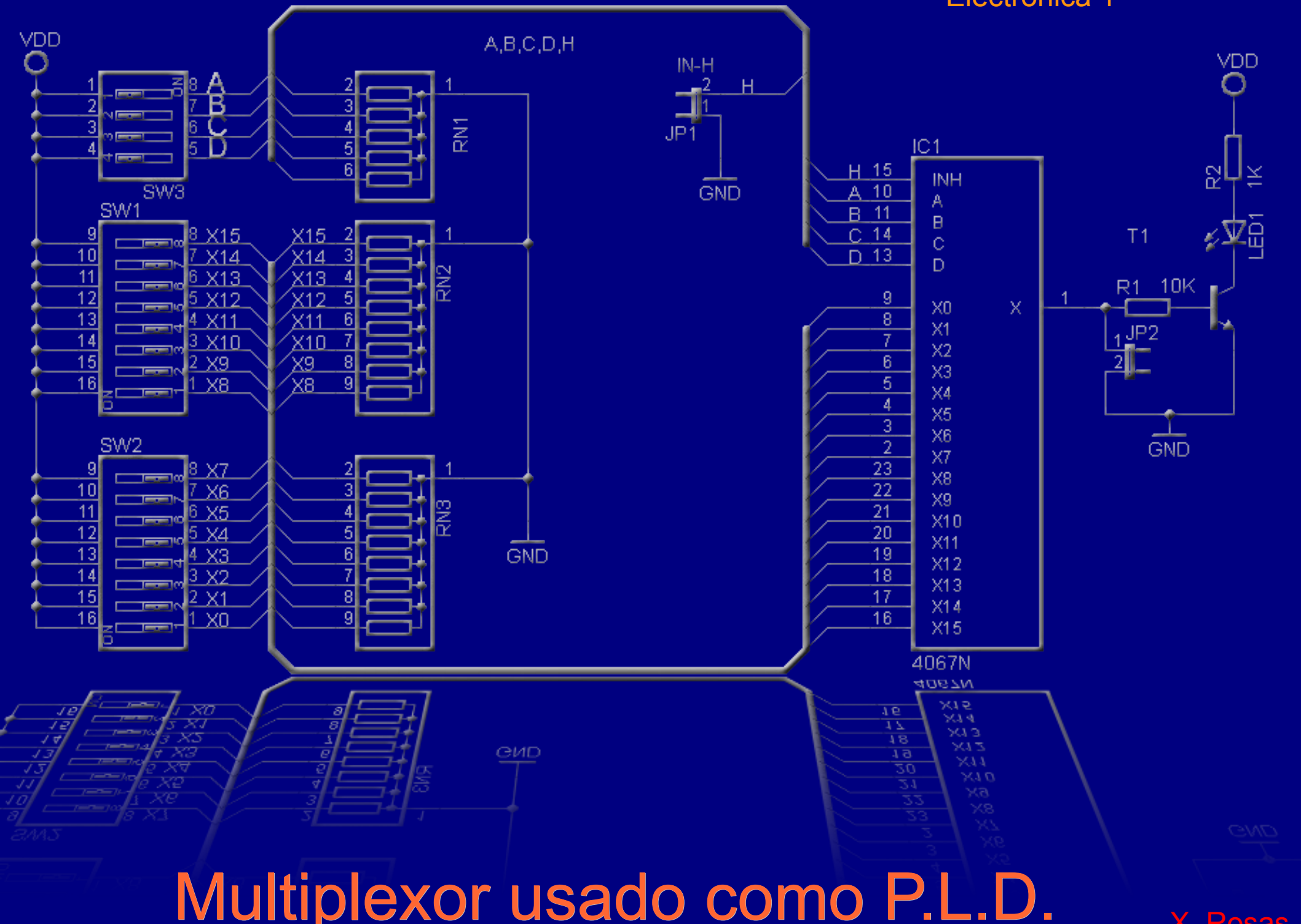
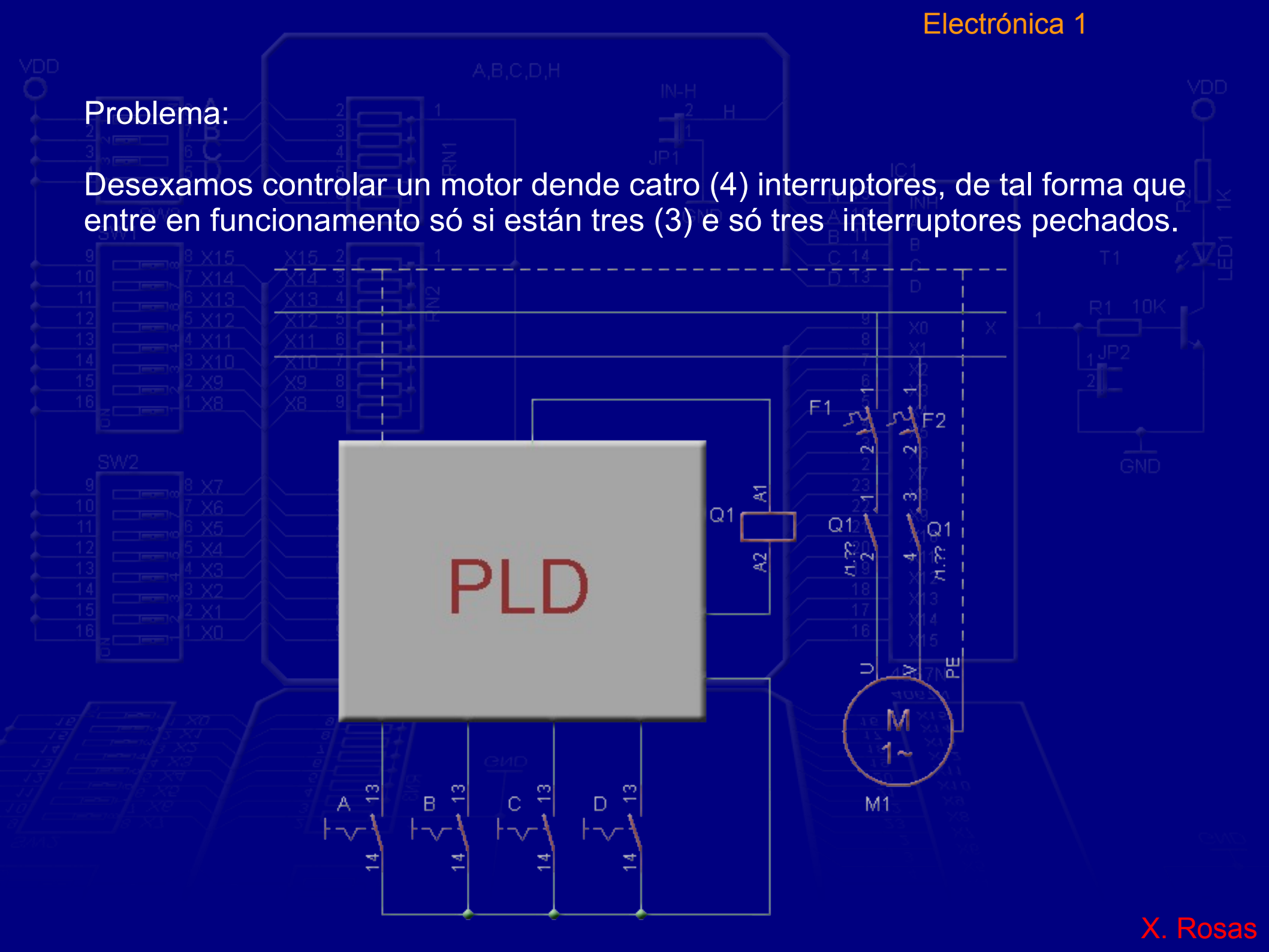


Multiplexor usado como P.L.D.

X. Rosas

Problema:

Desexamos controlar un motor dende catro (4) interruptores, de tal forma que entre en funcionamento só si están tres (3) e só tres interruptores pechados.



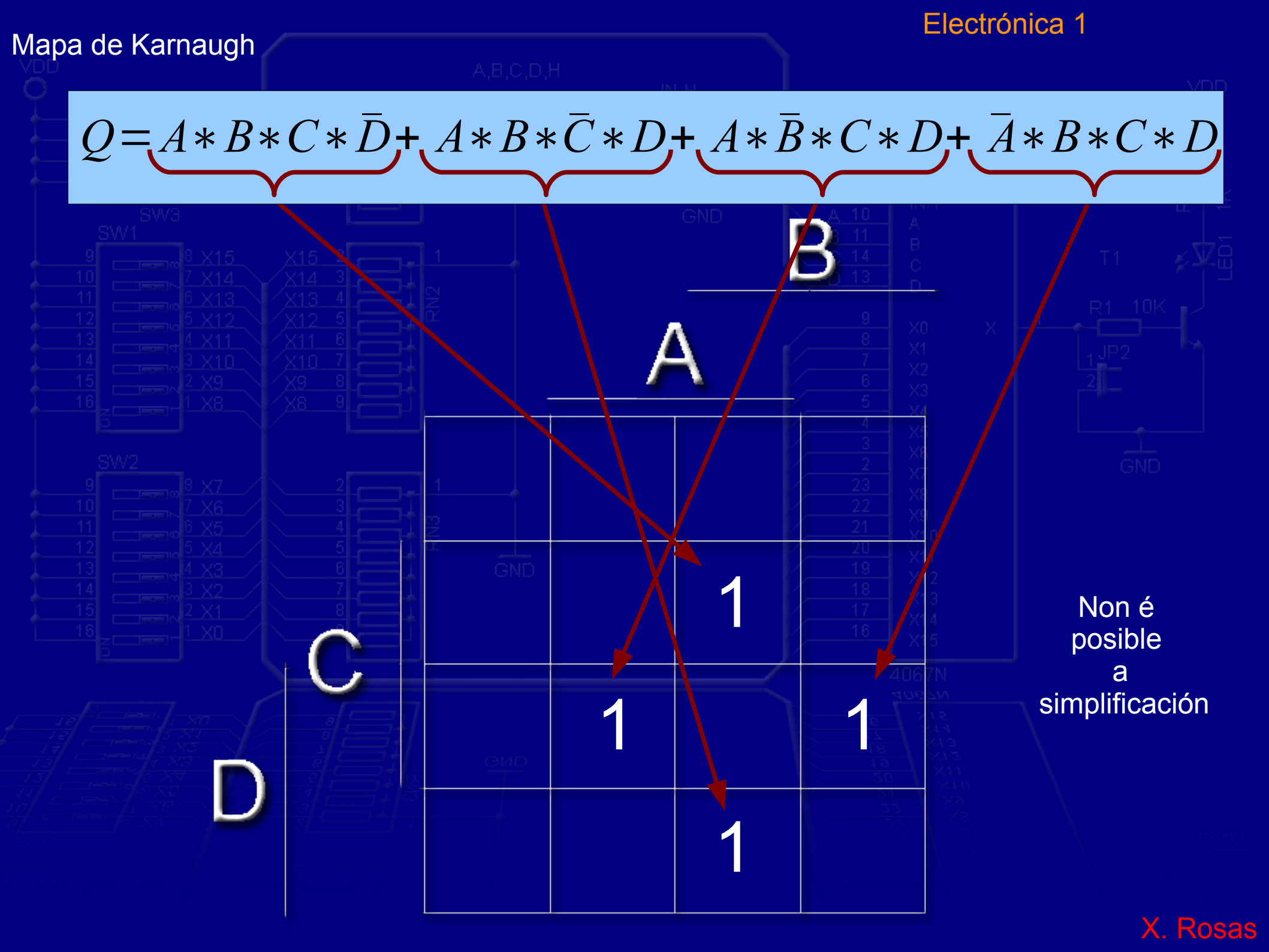
Táboa de verdade

D	C	B	A	Q
0	0	0	0	0
0	0	0	1	0
0	0	1	0	0
0	0	1	1	0
0	1	0	0	0
0	1	0	1	0
0	1	1	0	0
0	1	1	1	1
1	0	0	0	0
1	0	0	1	0
1	0	1	0	0
1	0	1	1	1
1	1	0	0	0
1	1	0	1	1
1	1	1	0	1
1	1	1	1	0

$$Q = A * B * C * \bar{D} + A * B * \bar{C} * D + A * \bar{B} * C * D + \bar{A} * B * C * D$$

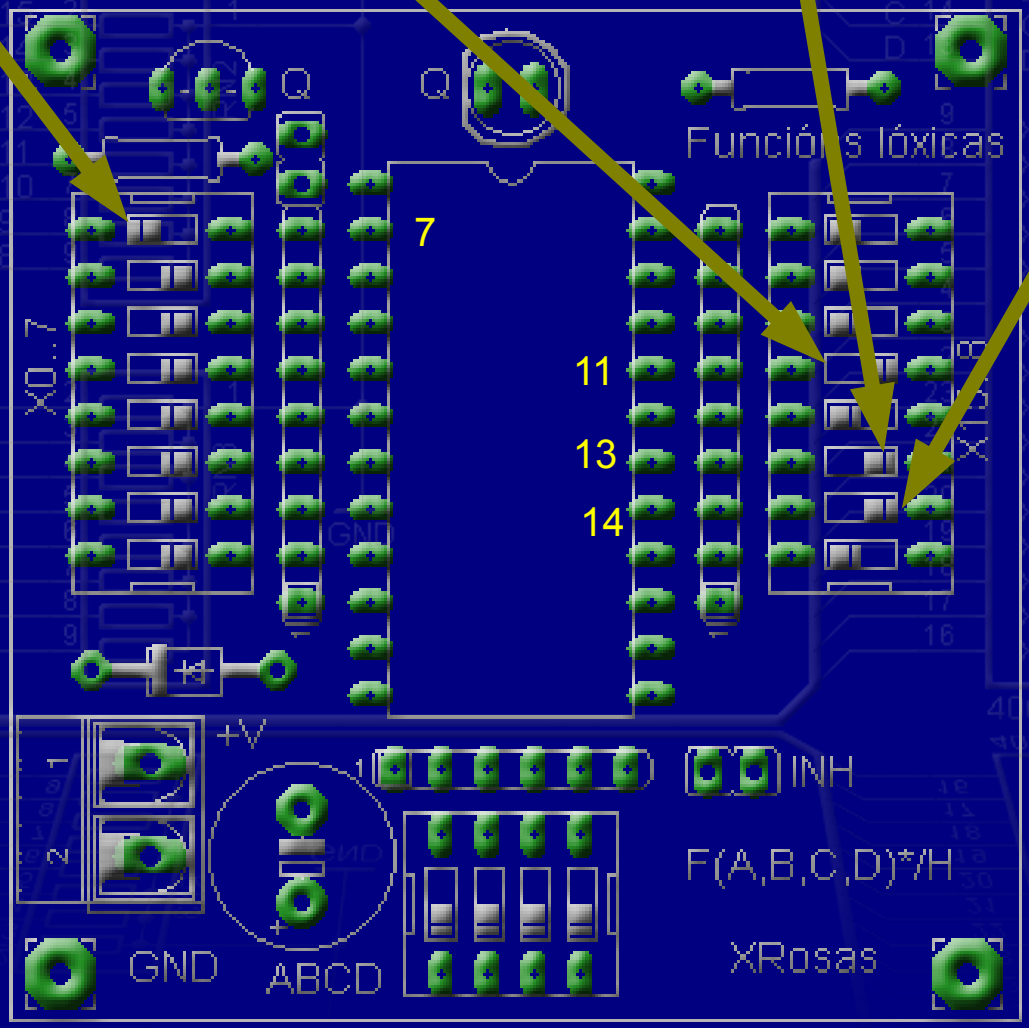
Mapa de Karnaugh

$$Q = A*B*C*\bar{D} + A*B*\bar{C}*D + A*\bar{B}*C*D + \bar{A}*B*C*D$$



Non é posible a simplificación

$$Q = \underbrace{A*B*C*\bar{D}}_{1+2+4+0=7} + \underbrace{A*B*\bar{C}*D}_{1+2+0+8=11} + \underbrace{A*\bar{B}*C*D}_{1+0+4+8=13} + \underbrace{\bar{A}*B*C*D}_{0+2+4+8=14}$$



$A = 2^0 = 1$

$B = 2^1 = 2$

$C = 2^2 = 4$

$D = 2^3 = 8$

Comprobación

Competa a seguinte táboa cos resultados obtidos

D	C	B	A	Q
0	0	0	0	
0	0	0	1	
0	0	1	0	
0	0	1	1	
0	1	0	0	
0	1	0	1	
0	1	1	0	
0	1	1	1	
1	0	0	0	
1	0	0	1	
1	0	1	0	
1	0	1	1	
1	1	0	0	
1	1	0	1	
1	1	1	0	
1	1	1	1	