

Ejercicio 1

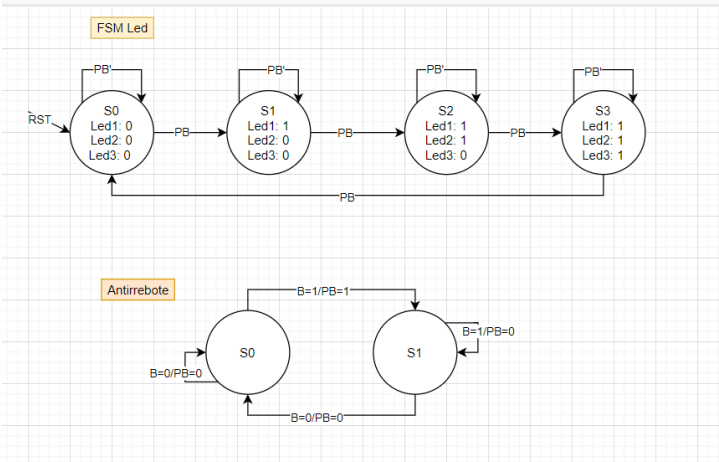


Figura 1. Diagrama de estados

SA1	SA0	PB	SF1	SF0	SA1	SA0	Led1	Led2	Led3	SA	B	SF	PB
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	1	0	1	1	0	0	0	1	1	1
0	1	0	0	1	1	0	1	1	0	1	0	0	0
0	1	1	1	0	1	1	1	1	0	1	1	1	1
1	0	0	1	0	1	1	1	1	1	1	1	1	0
1	0	1	1	1	1	1	1	1	1	1	1	1	0
1	1	0	1	1	1	1	1	1	1	1	1	1	0
1	1	1	0	0	1	1	1	1	1	1	1	1	0
Minimized:					Minimized:					Minimized:			
SF1 = SA1 SA0' + SA1 PB' + SA1' SA0 PB;					Led1 = SA1 + SA0;					SF = B;			
SF0 = SA0' PB + SA0 PB';					Led2 = SA1 ;					PB = SA' B;			
					Led3 = SA1 SA0;								

Figura 2. Tablas de estados, salidas y antirrebote

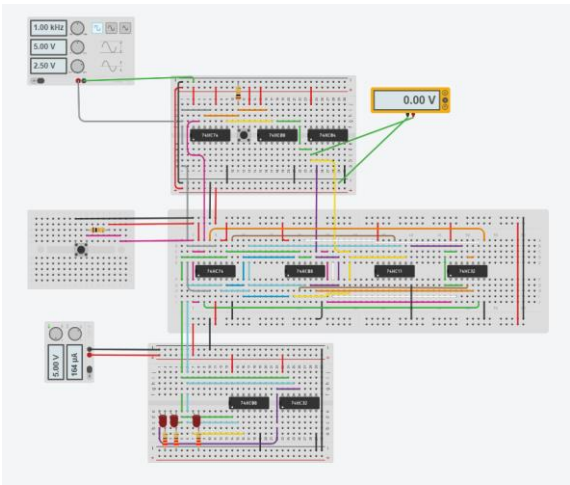


Figura 3. Circuito ejercicio 1

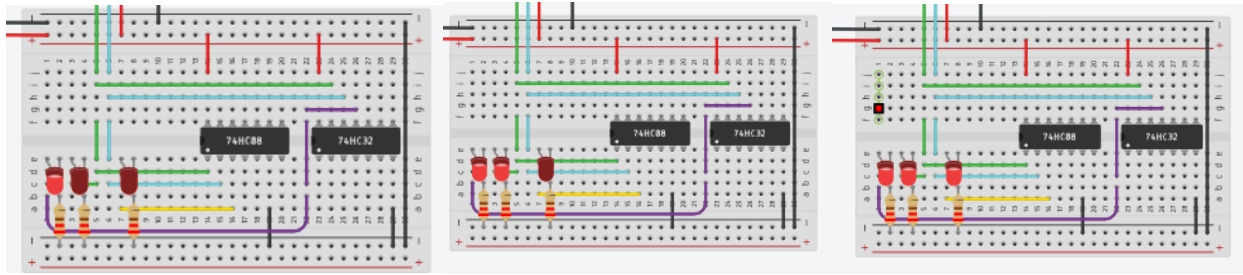


Figura 4. Leds en el orden que se encienden

Ejercicio 2

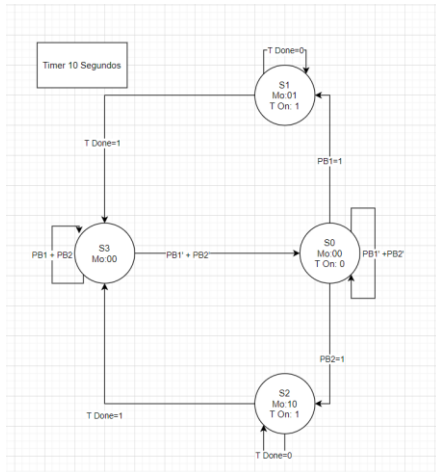


Figura 5. Diagrama de estados de ejercicio 2

SA1	SA0	PB1	PB2	T Done	SF1	SF0	SA1	SA0	Mo1	Mo0	T On
0	0	0	0	x	0	0	0	1	0	1	1
0	0	1	0	x	0	1	1	0	1	0	1
0	0	0	1	x	1	0	0	0	0	0	0
0	0	1	1	x	0	0	1	1	0	0	0
0	1	x	x	0	0	1	0	0	0	0	0
0	1	x	x	1	1	1	1	1	1	1	1
1	0	x	x	0	1	0	0	0	0	0	0
1	0	x	x	1	1	1	1	1	1	1	1
1	1	1	0	x	1	1	1	1	1	1	1
1	1	0	1	x	1	1	1	1	1	1	1
1	1	0	0	x	0	0	0	0	0	0	0
1	1	1	1	x	1	1	1	1	1	1	1

Entered by truthtable:
M1 = SA1 SA0';
M0 = SA1' SA0;
T On = SA1' SA0 + SA1 SA0';

SF1 = SA1 SA0' + SA1 PB1 + SA1 PB2 + SA0' PB1 PB2' + SA1' SA0 T Done;
SF0 = SA1' SA0 + SA0 PB1 + SA0 PB2 + SA1' PB1' PB2 + SA1 SA0' T Done ;

Figura 6. Tabla de estados y salidas

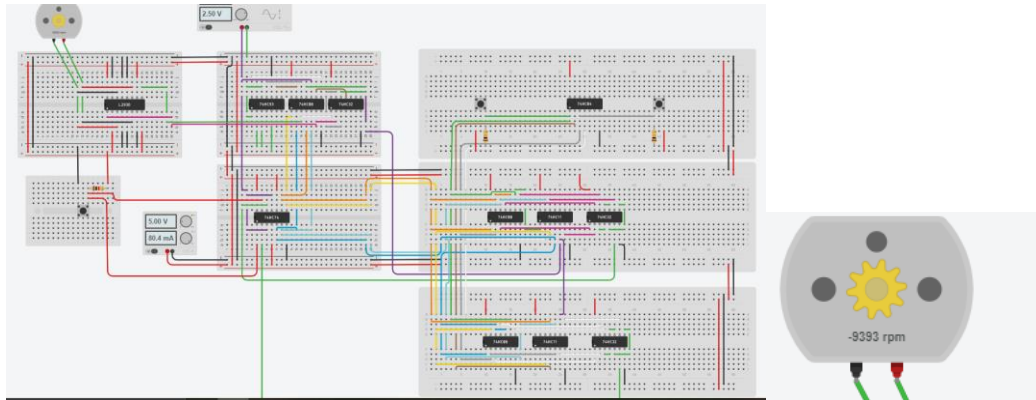


Figura 7. Circuito de ejercicio 2 con el motor hacia un lado

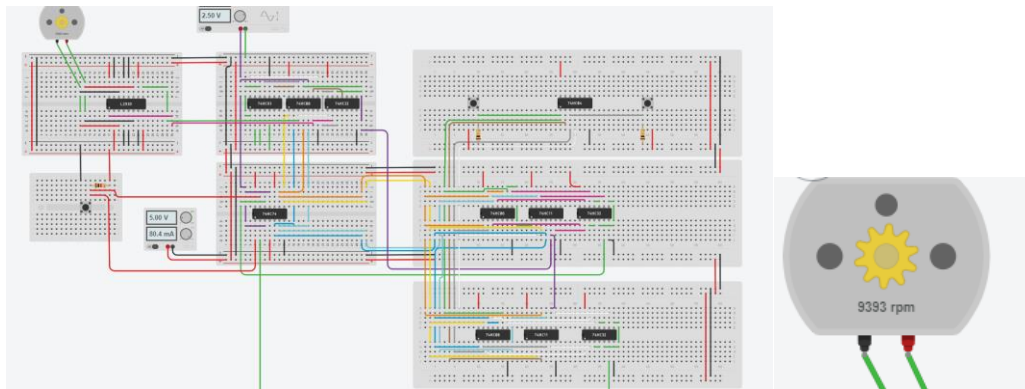


Figura 8. Circuito con el motor hacia el otro lado

Ejercicio 3

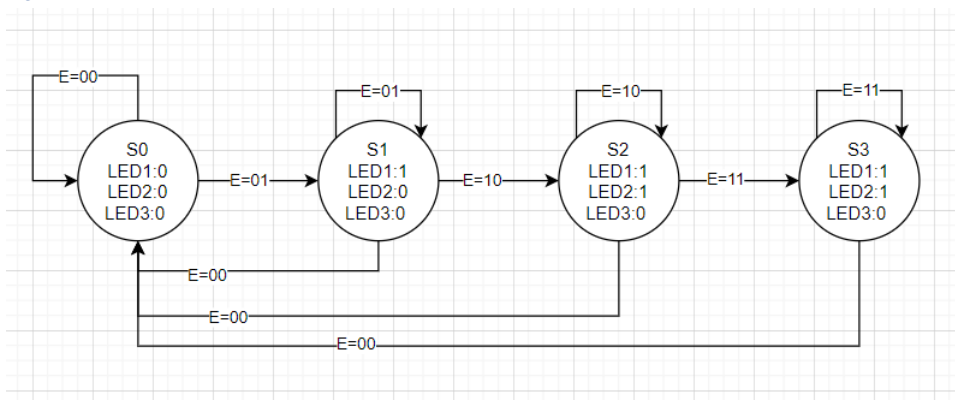


Figura 9. Diagrama de estados

SA1	SA0	E1	E0		SF1	SF0	SA1	SA0		LED1	LED2	LED3
X	X		1	X		1	0	1	0	1	0	0
X	X					0	0	0	1	1	0	0
X	X	X		1		0	1	1	0	1	1	0
								1	1	1	1	1

Minimized:
SF1 = E1 ;
SF0 = E0;

Minimized:
LED1 = SA1 + SA0;
LED2 = SA1 ;
LED3 = SA1 SA0;

Figura 10. Tablas de estados y salidas

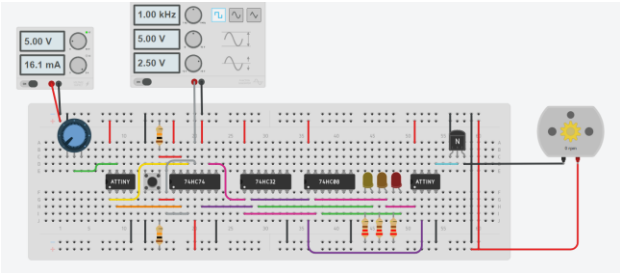


Figura 11. Motor apagado

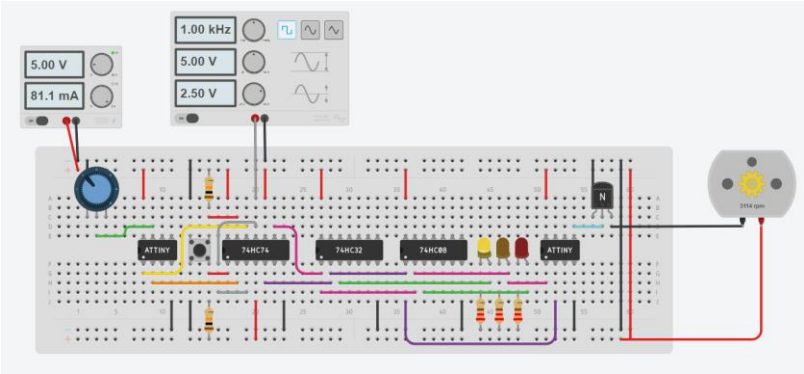


Figura 12. Motor a velocidad baja

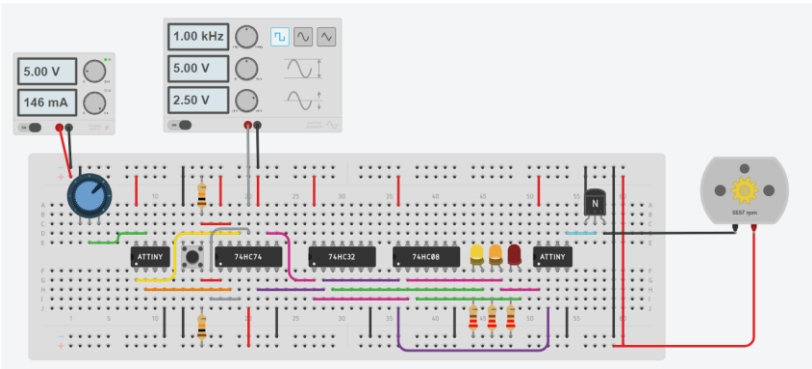


Figura 13. Motor a velocidad media

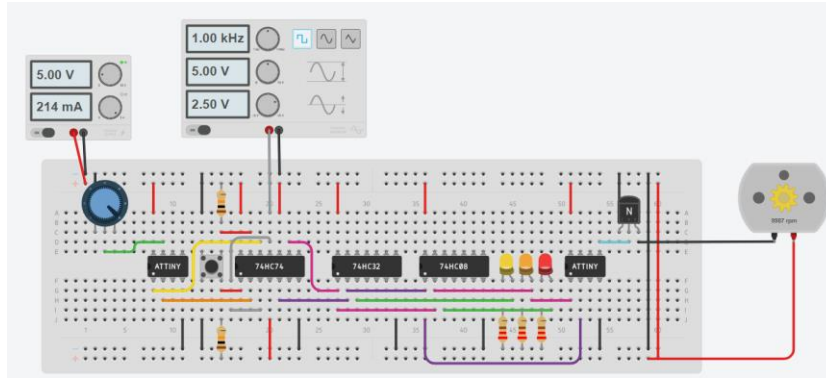


Figura 14. Motor a velocidad alta

Links:

Ejercicio 1: <https://www.tinkercad.com/things/fc7gJNSLFHU-swanky-sango>

Ejercicio 2: <https://www.tinkercad.com/things/6t2uMKzYmax-stunning-wolt-tumelo>

Ejercicio 3: <https://www.tinkercad.com/things/1HuINxu0ell-cool-wolt-snaget>