UNIVERSIDADE FEDERAL DE OURO PRETO
CIÊNCIA DA COMPUTAÇÃO

JULIANA APARECIDA BORGES
MARIA CLARA MIRANDA DE SÁ

RELATÓRIO 08

Portas Lógicas

MINAS GERAIS
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INTRODUÇÃO

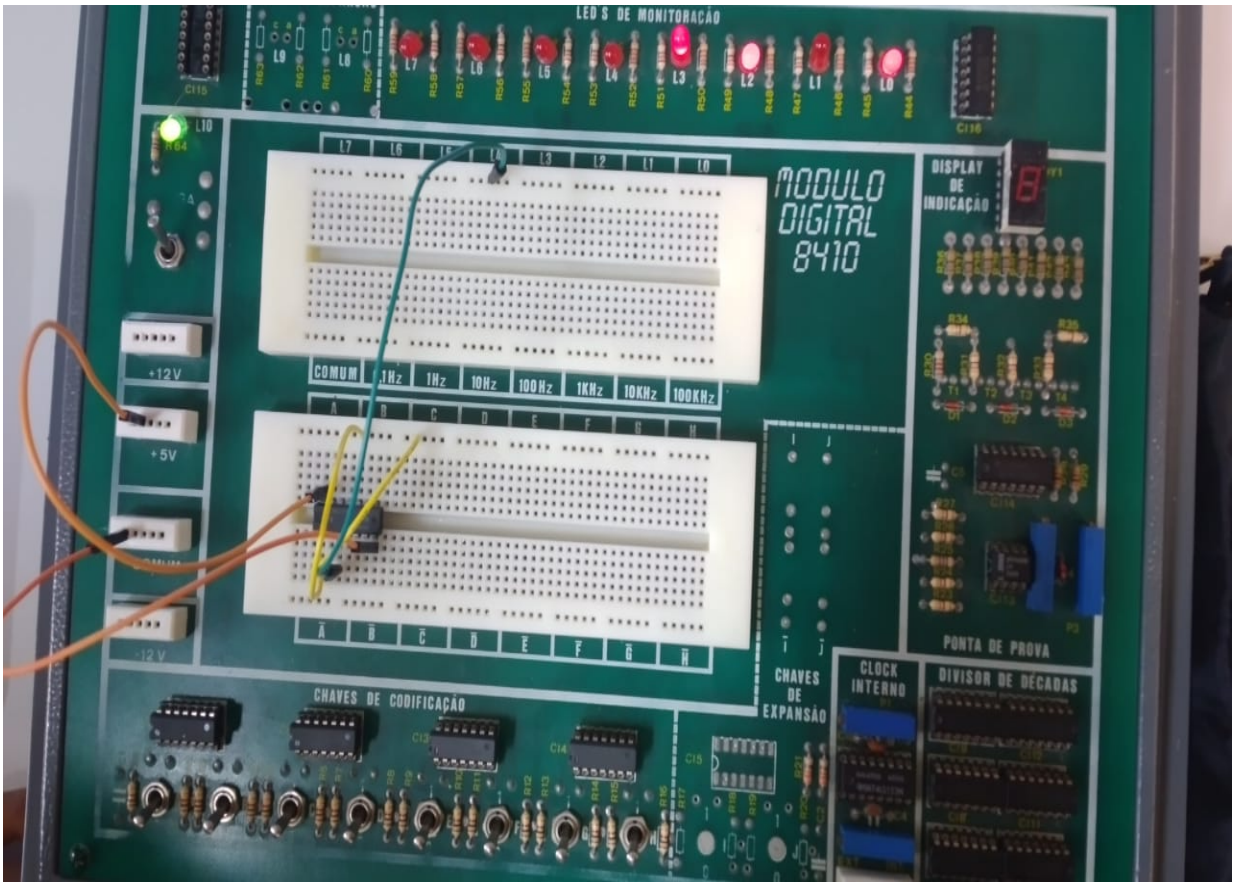
Neste relatório iremos retratar sobre os circuitos digitais usando as principais portas lógicas(AND, NOT, NOR, NAND, OR). Além disso, utilizamos transistores para realizar a montagem dos circuitos, componente importante para o estudo de circuitos, bem como suas características. Por fim analisaremos seu comportamento usando as leds e as chaves para verificar a tabela verdade de cada porta lógica.

DESENVOLVIMENTO

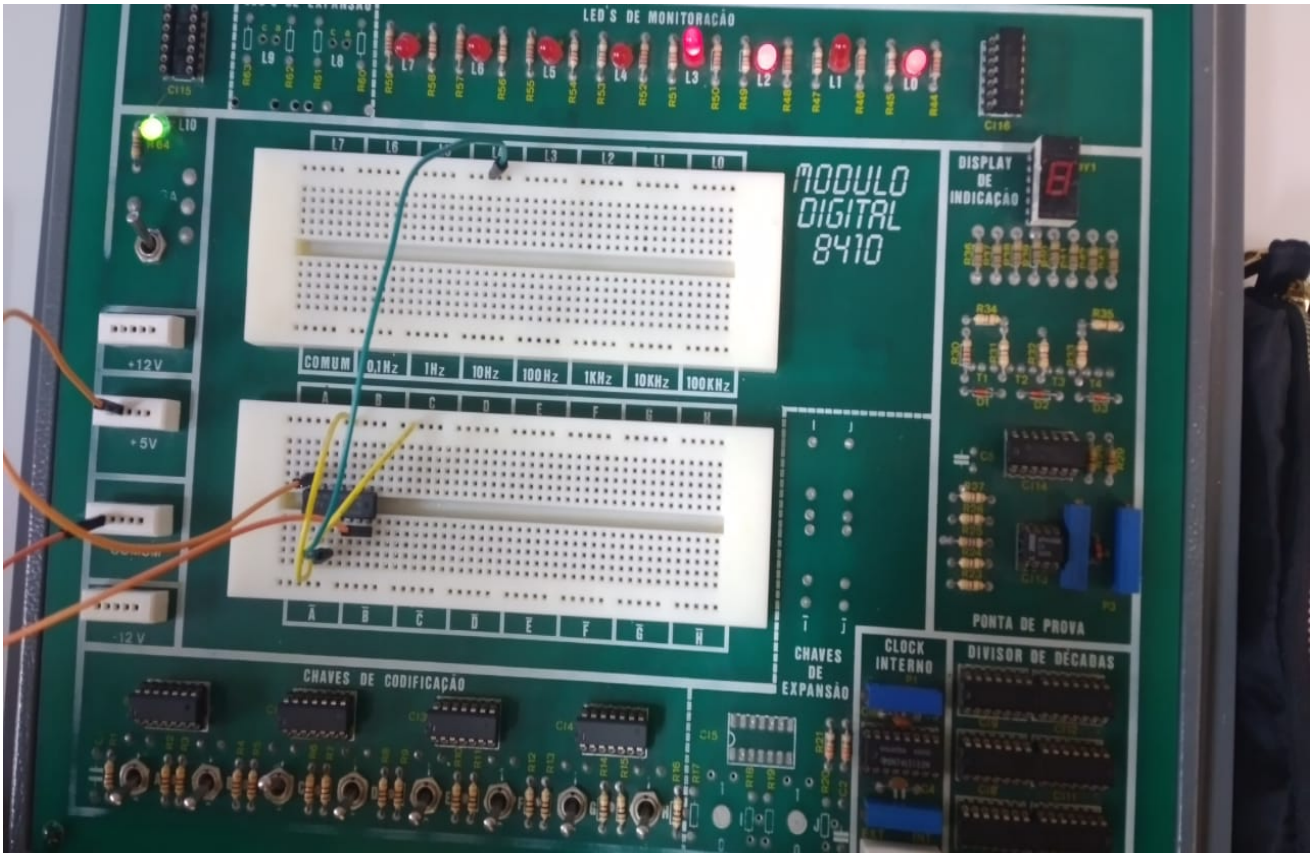
Atividade: Tivemos que testar as portas lógicas AND, NAND, OR, NOR e NOT. Usamos o protoboard, os fios e as portas. Começamos ligando primeiro o protoboard para verificar se as LEDs estavam funcionando, em seguida testamos uma porta lógica de cada vez. Abaixo os testes de cada porta lógica:
Obs.: Conectamos o circuito no led 4 (L4).

AND

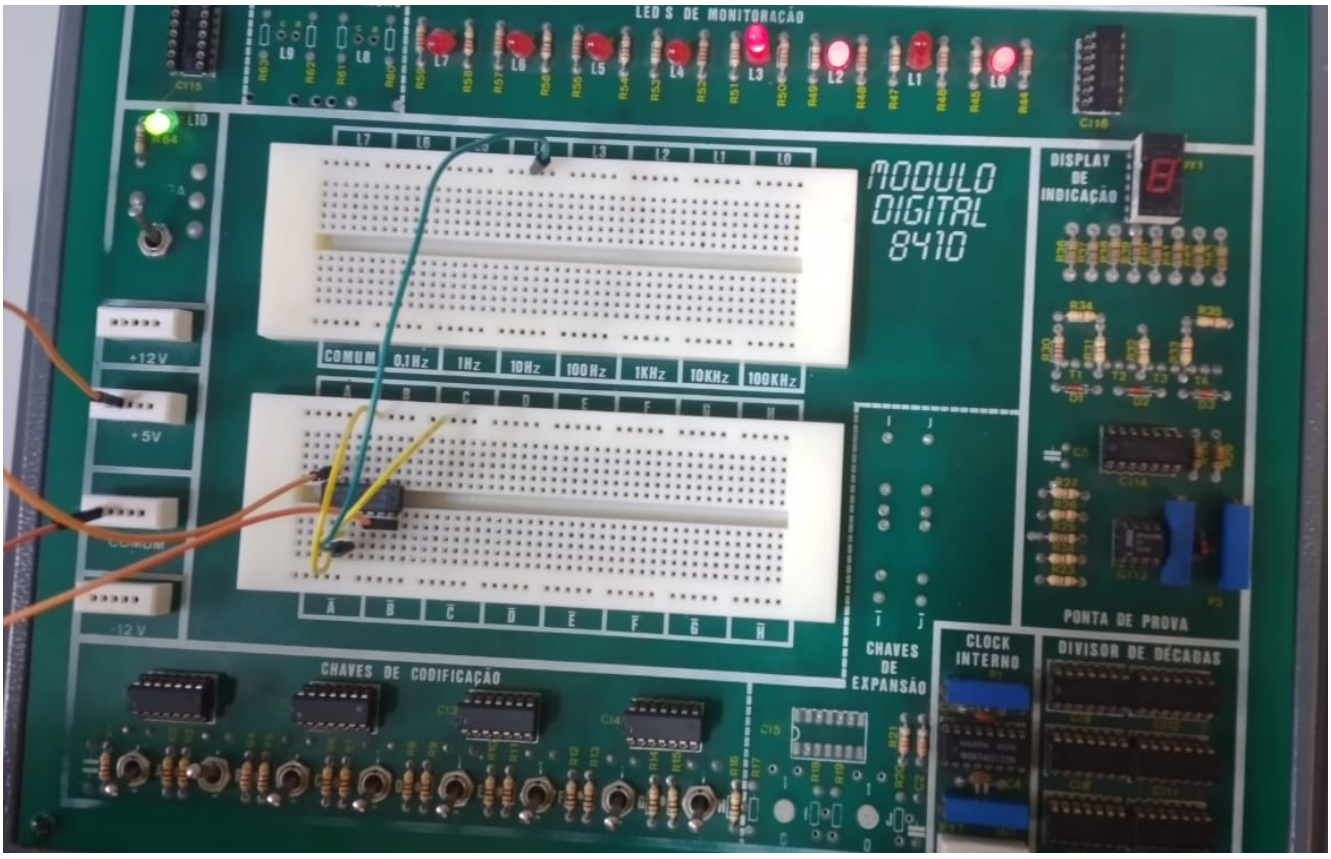
CASO 00



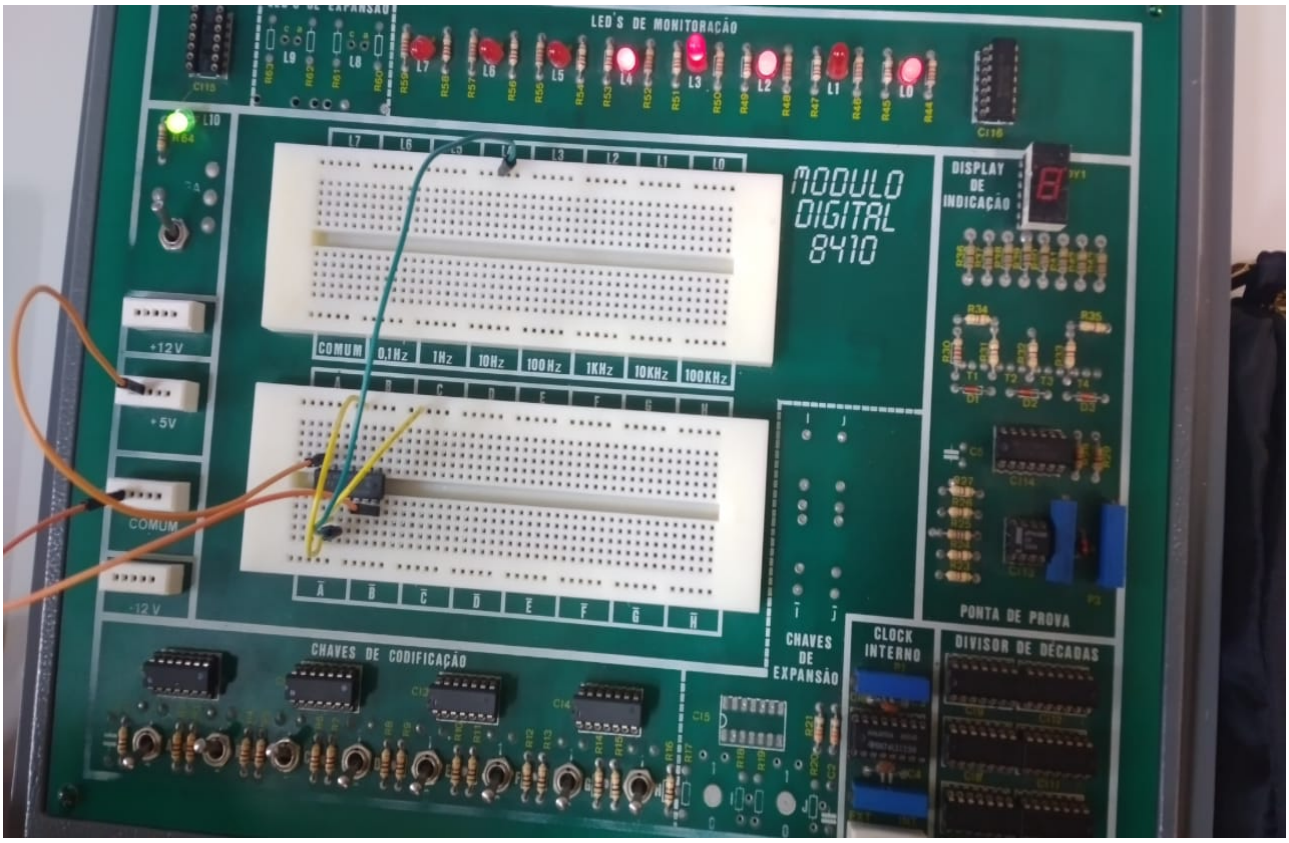
CASO 01


LED'S DE MONITORAÇÃO
MODULO DIGITAL 8410
DISPLAY DE INDICAÇÃO
COMUM 0,1Hz 1Hz 10Hz 100Hz 1KHz 10KHz 100KHz
+12V
+5V
-12V
CHAVES DE CODIFICAÇÃO
CHAVES DE EXPANSÃO
CLOCK INTERNO
DIVISOR DE DÉCADAS
PONTA DE PROVA

CASO 10

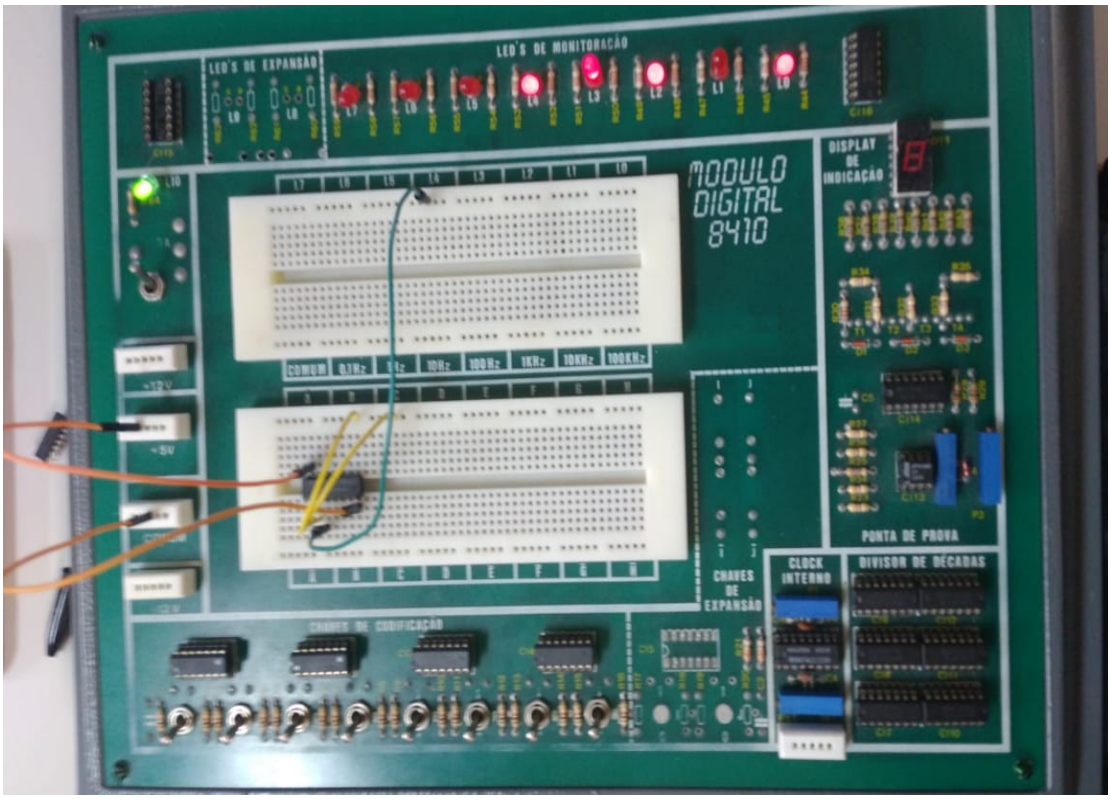

LED'S DE MONITORAÇÃO
MODULO DIGITAL 8410
DISPLAY DE INDICAÇÃO
COMUM 0,1Hz 1Hz 10Hz 100Hz 1KHz 10KHz 100KHz
+12V
+5V
-12V
CHAVES DE CODIFICAÇÃO
CHAVES DE EXPANSÃO
CLOCK INTERNO
DIVISOR DE DÉCADAS
PONTA DE PROVA

CASO 11


LED'S DE MONITORAÇÃO
MODULO
DIGITAL
8410
DISPLAY
DE
INDICAÇÃO
+12V
+5V
COMUM
-12 V
COMUM
0,1Hz
1Hz
10Hz
100Hz
1KHz
10KHz
100KHz
CHAVES DE CODIFICAÇÃO
CHAVES
DE
EXPANSÃO
CLOCK
INTERNO
DIVISOR DE DECADAS
PONTA DE PROVA

NAND

CASO 00



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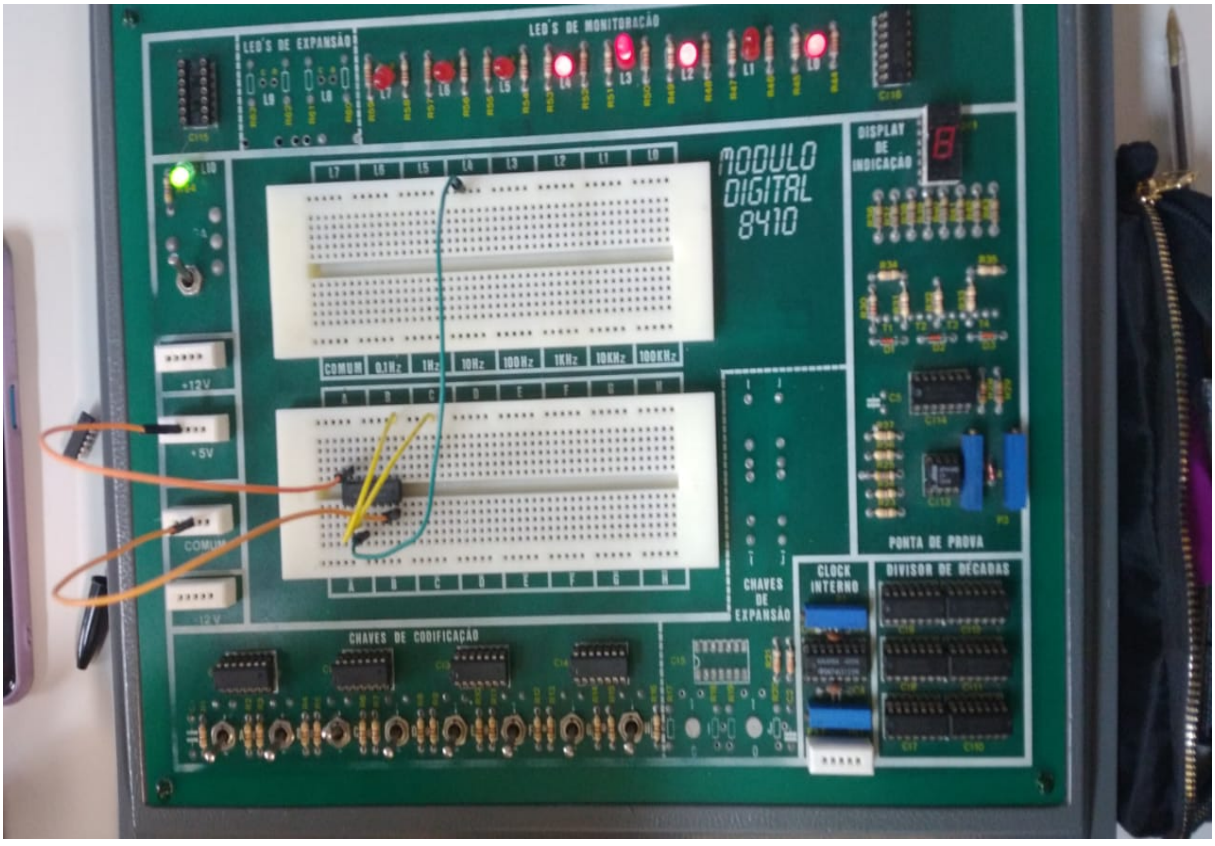

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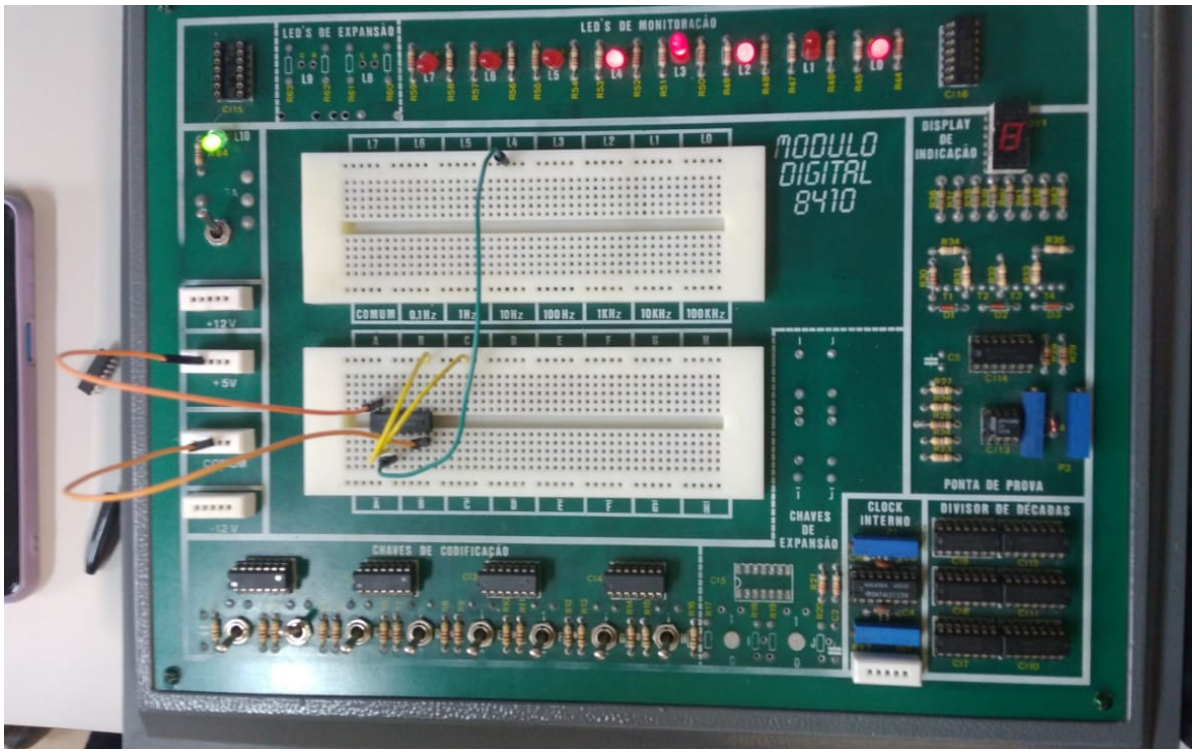

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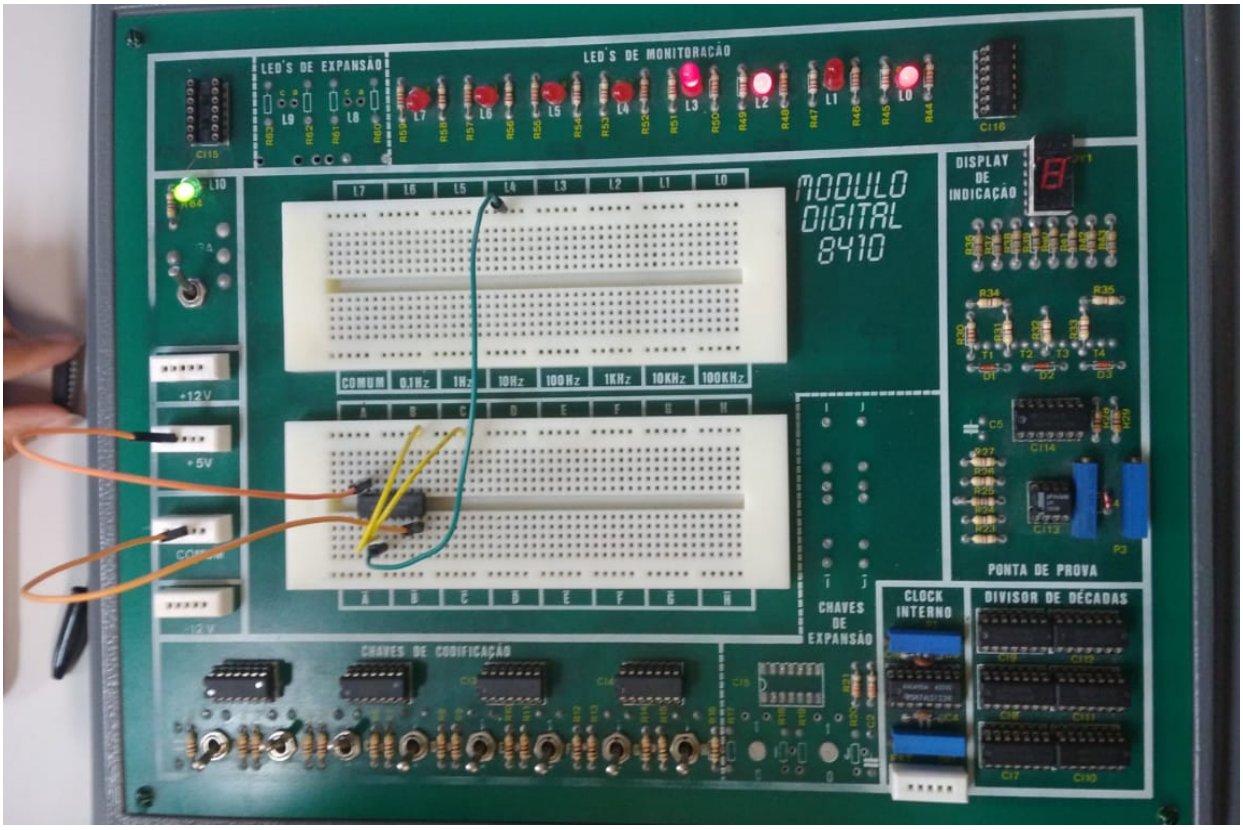
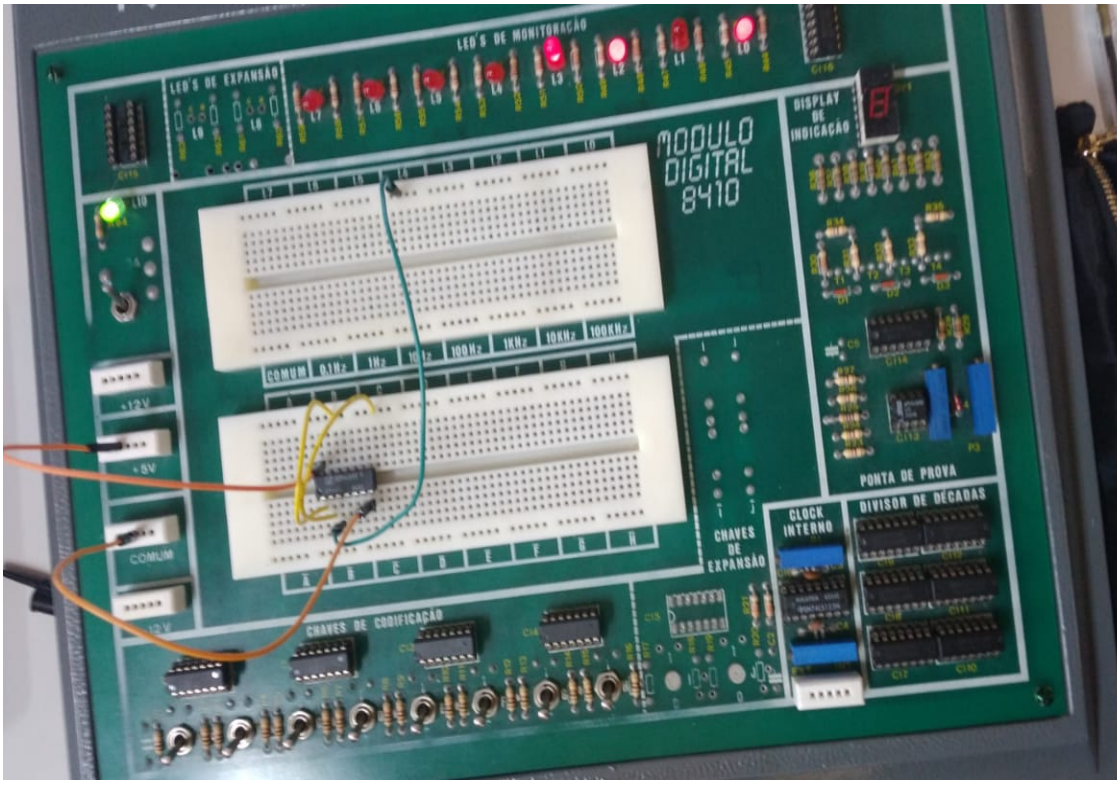


OR

CASO 00



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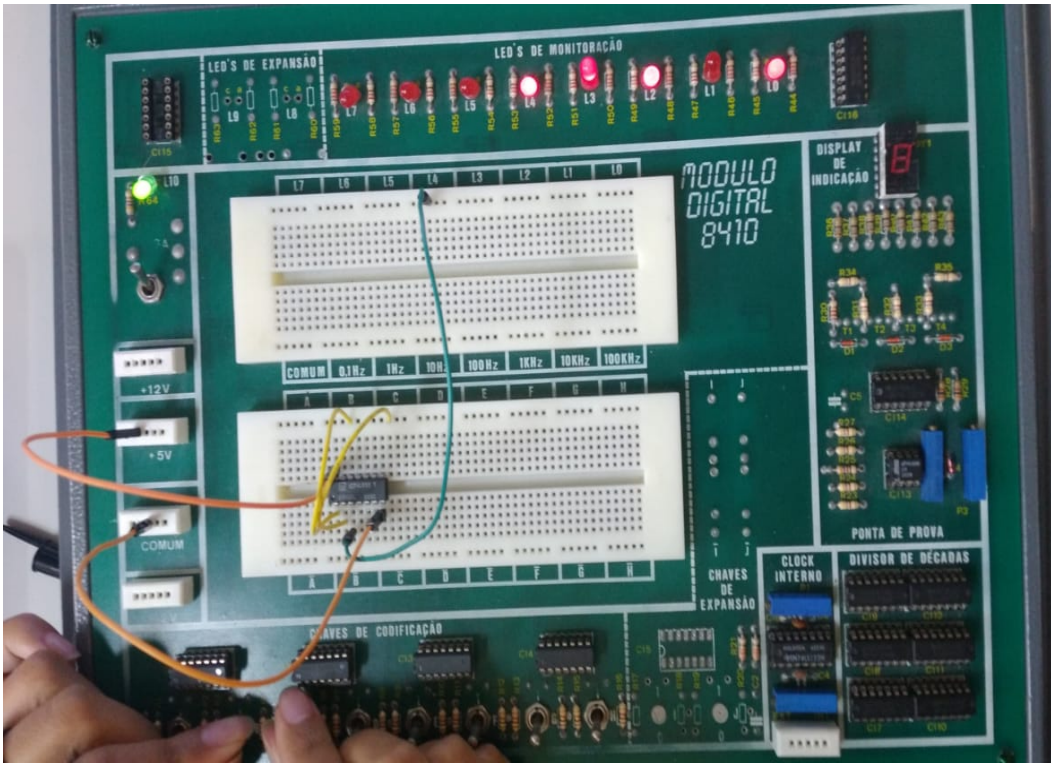

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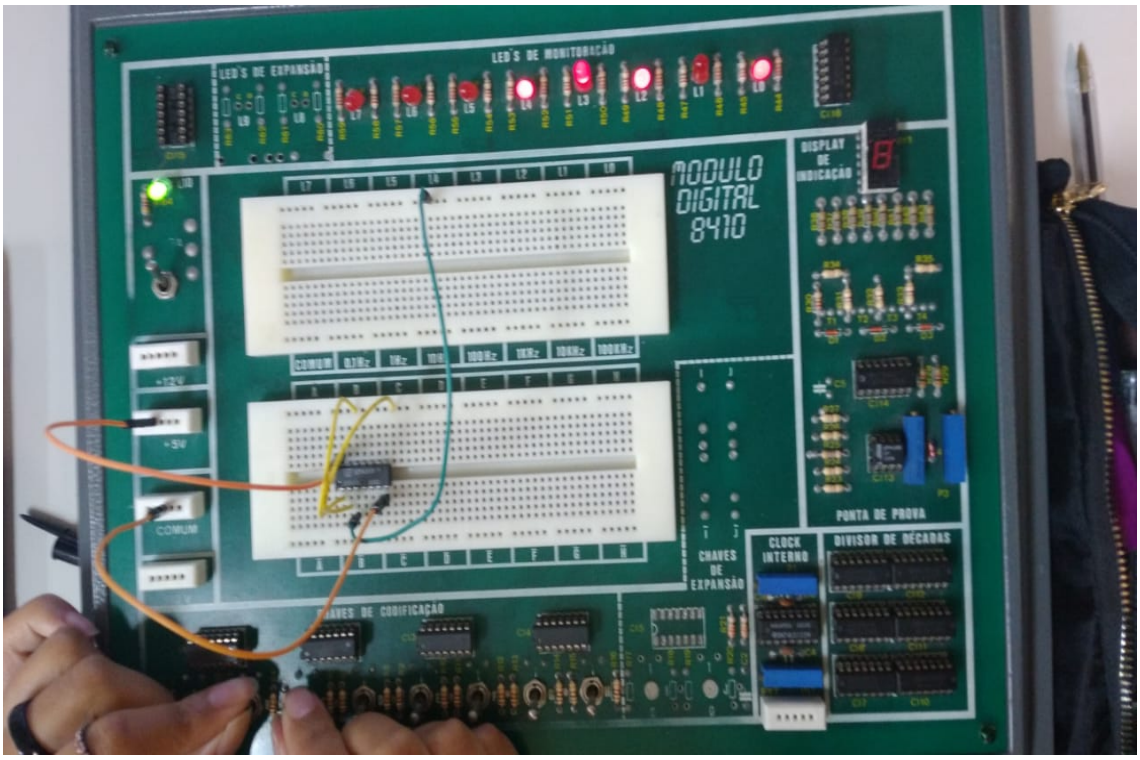

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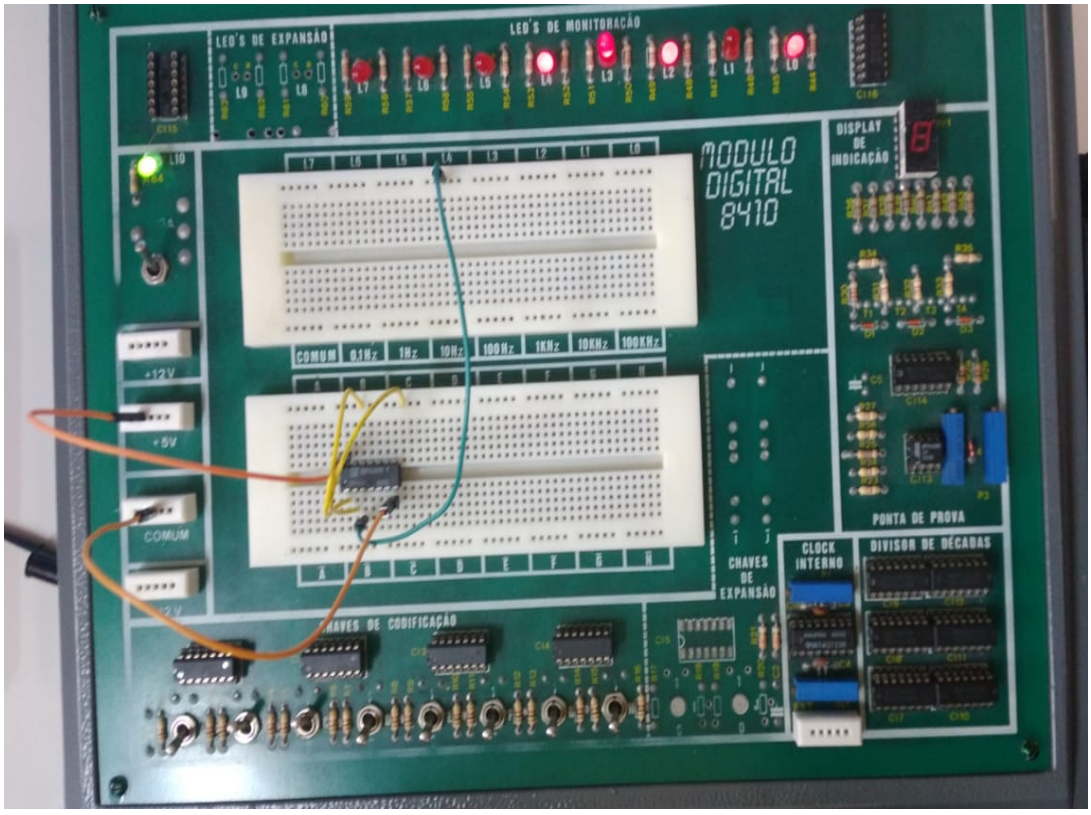
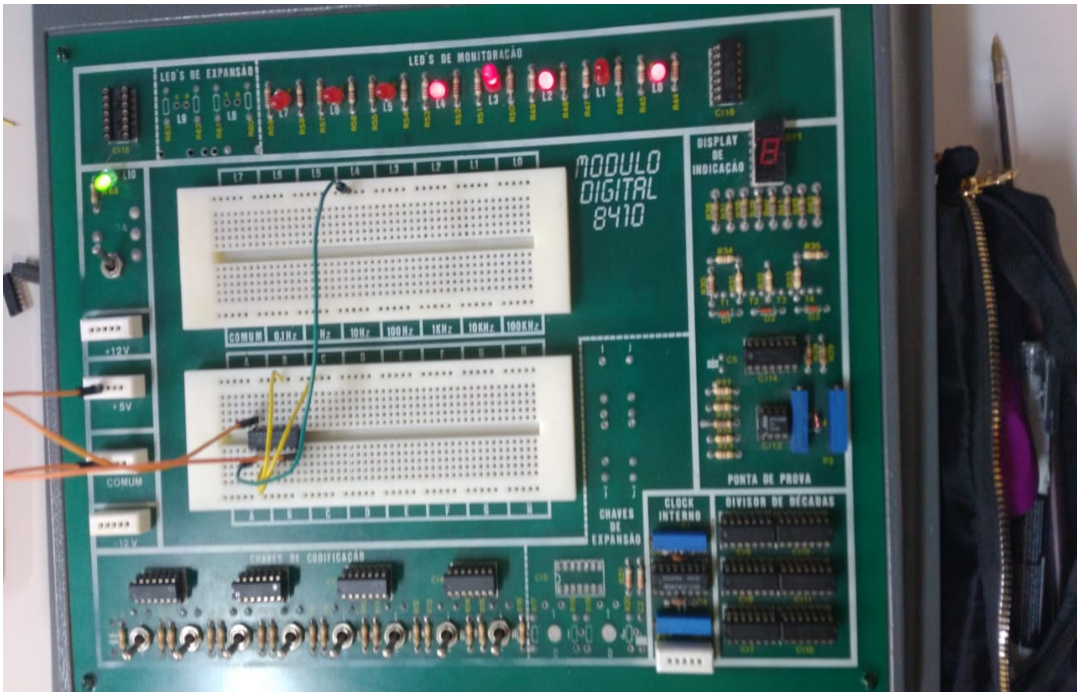
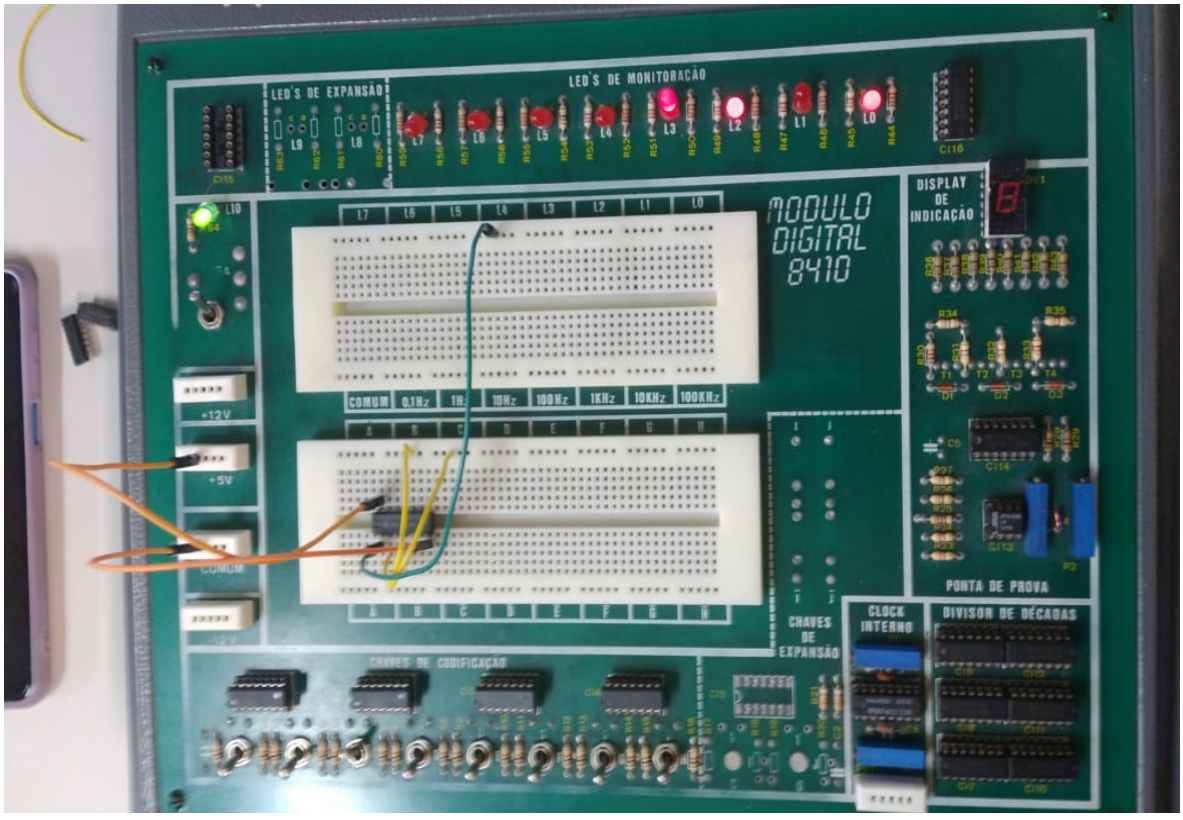


NOR

CASO 00



CASO 01



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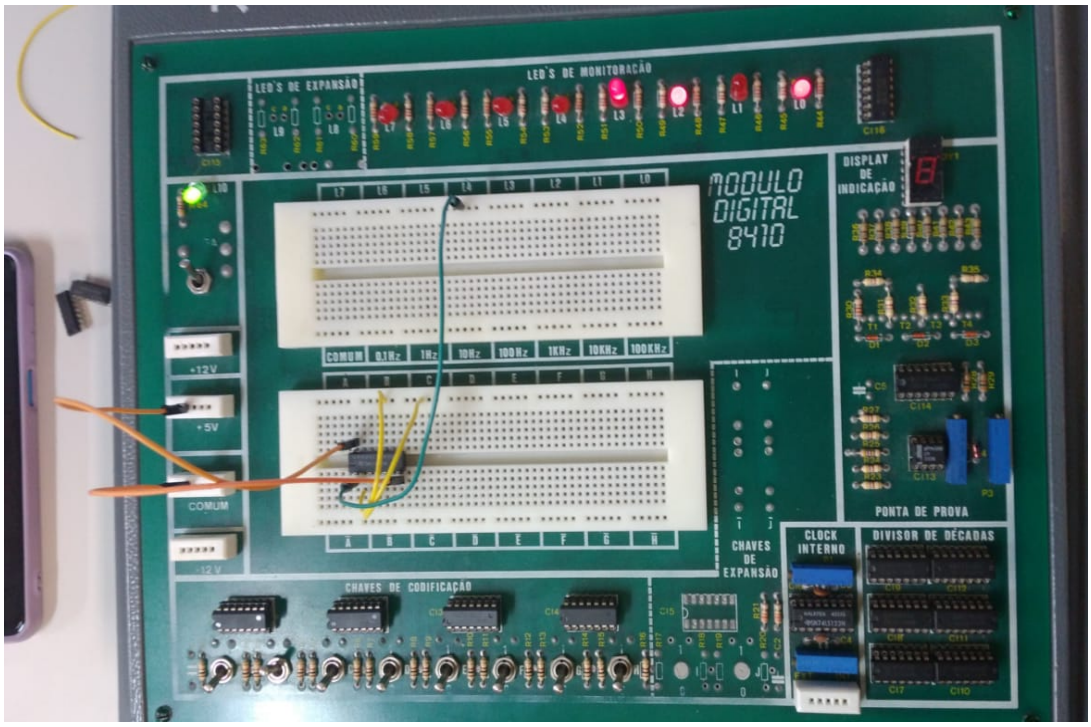

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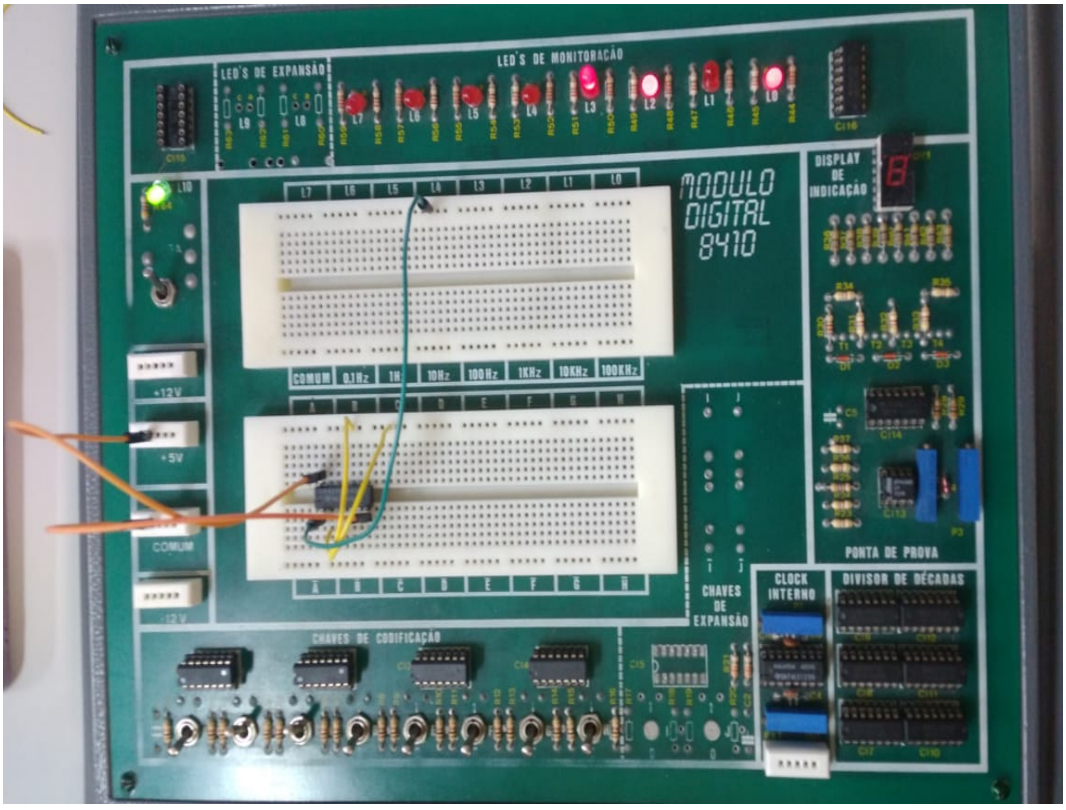
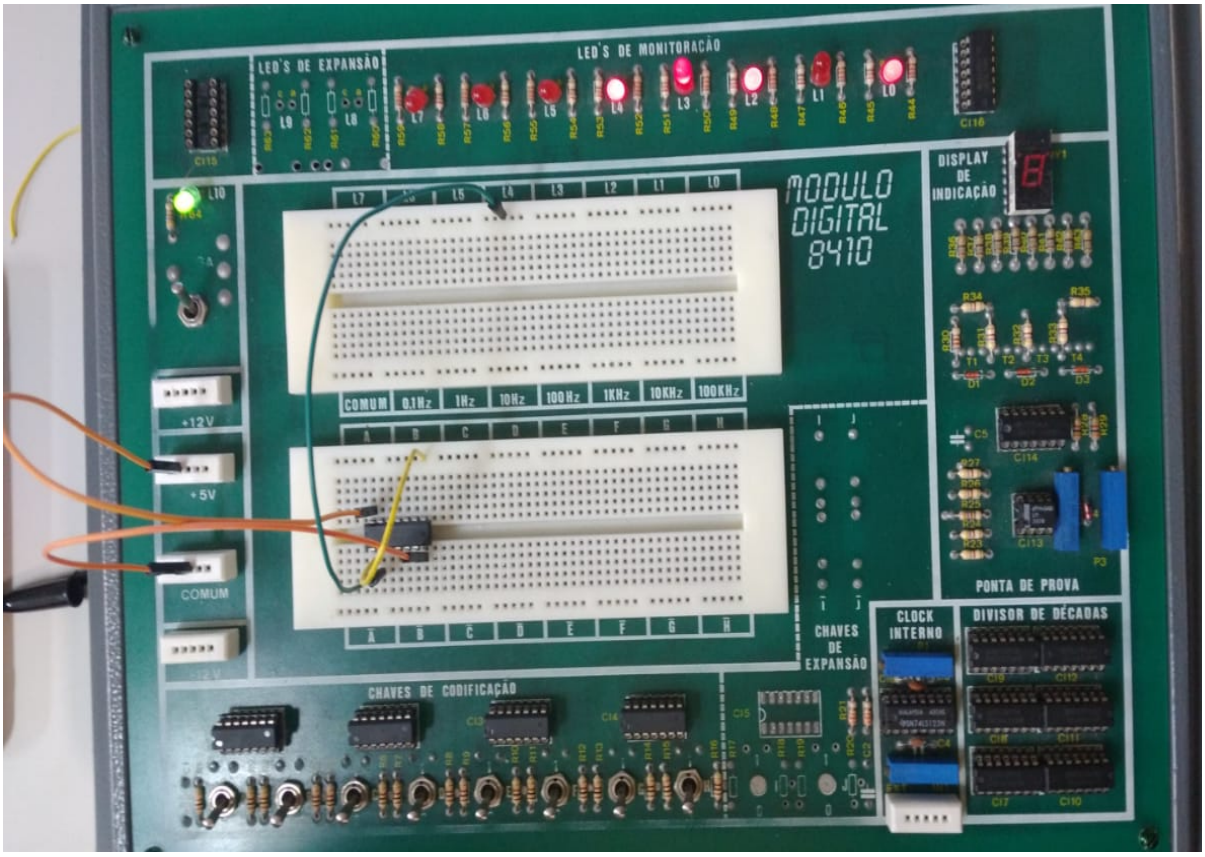
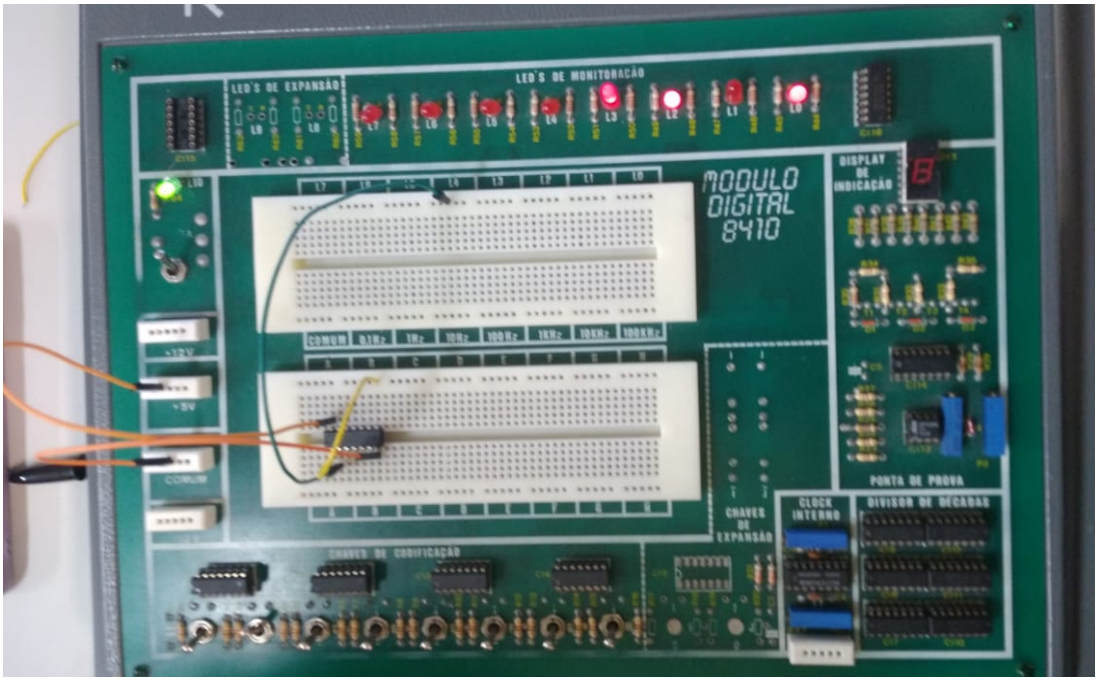


NOT

CASO 0



CASO 1

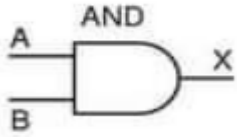


TABELAS

Comparação: Tabela obtida pelo protoboard e a tabela verdade correta das portas lógicas.

AND

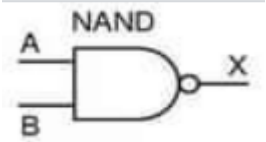
	Entradas		Saída
	A	B	L
0	0	0	0
1	0	1	0
2	1	0	0
3	1	1	1



A	B	X
0	0	0
0	1	0
1	0	0
1	1	1

NAND

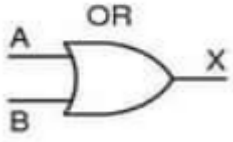
	Entradas		Saída
	A	B	L
0	0	0	1
1	0	1	1
2	1	0	1
3	1	1	0



A	B	X
0	0	1
0	1	1
1	0	1
1	1	0

OR

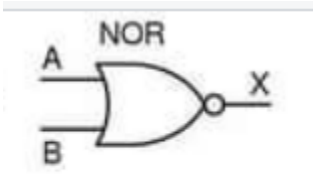
	Entradas		Saída
	A	B	L
0	0	0	0
1	0	1	1
2	1	0	1
3	1	1	1



A	B	X
0	0	0
0	1	1
1	0	1
1	1	1

NOR

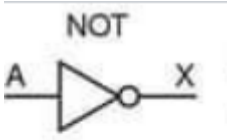
	Entradas		Saída
	A	B	L
0	0	0	1
1	0	1	0
2	1	0	0
3	1	1	0



A	B	X
0	0	1
0	1	0
1	0	0
1	1	0

NOT

	Entradas	Saída
	A	L
0	0	1
1	1	0



A	X
0	1
1	0

CONCLUSÃO:

Ao realizar esse relatório aprendemos a montar circuitos digitais utilizando transistores, a importância de analisar a tabela verdade. Além disso, usando o datapool conectamos os fios em duas entradas e uma saída em seus respectivos lugares, a fim de mostrar se o led acenderá ou ficará apagado.