INF2270, another exercise in combinational logic: example solution

P. Häfliger

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To obtain this solution one can first make a table of which segments need to be switched on for which numbers:

	A=LED(0)	B=LED(1)	C=LED(2)	D=LED(3)	E=LED(4)	F=LED(5)	G=LED(6)
'0'	1	1	1	1	1	1	0
'1'	0	1	1	0	0	0	0
'2'	1	1	0	1	1	0	1
'3'	1	1	1	1	0	0	1
'4'	0	1	1	0	0	1	1
'5'	1	0	1	1	0	1	1
'6'	1	0	1	1	1	1	1
'7'	1	1	1	0	0	0	0
'8'	1	1	1	1	1	1	1
'9'	1	1	1	1	0	1	1
'A'	1	1	1	0	1	1	1
'b'	0	0	1	1	1	1	1
'C'	1	0	0	1	1	1	0
'd'	0	1	1	1	1	0	1
'E'	1	0	0	1	1	1	1
'F'	1	0	0	0	1	1	1

The solution is then 6 OR gates, the inputs being the 1's from the columns of that table (see figure 1).

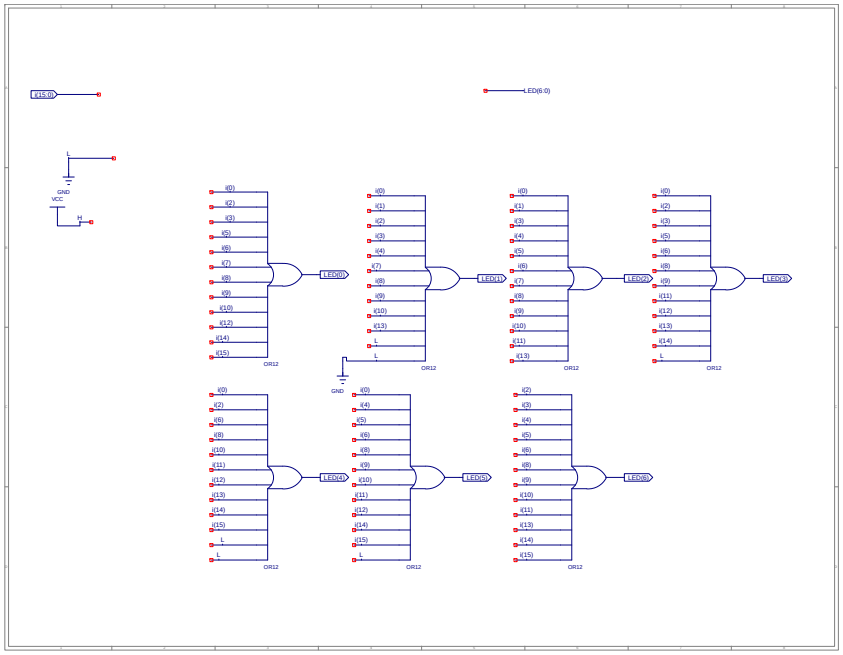

Figure 1: Schema of one possible solution