

ASSIGNMENT-1

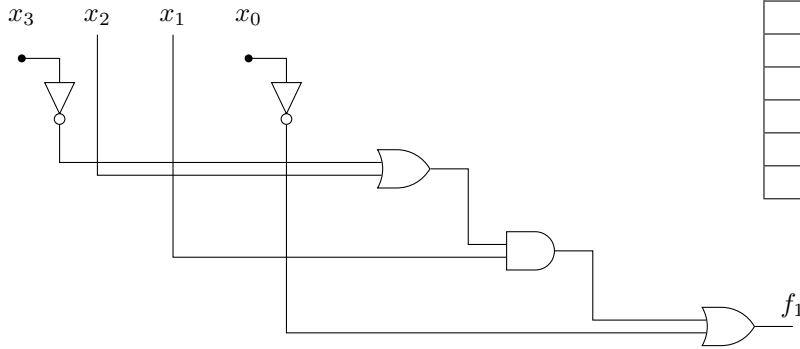
Truthtable:

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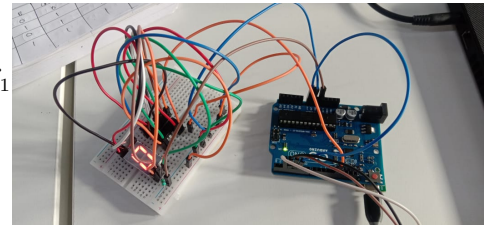
PROBLEM STATEMENT:

Draw the Logic Circuit for the following Boolean
Expression : $f(x_3, x_2, x_1, x_0) = (x_3' + x_2) \cdot x_1 + x_0'$

solution:



x3	x2	x1	x0	f
0	0	0	0	1
0	0	0	1	0
0	0	1	0	1
0	0	1	1	1
0	1	0	0	1
0	1	0	1	0
0	1	1	0	1
0	1	1	1	1
1	0	0	0	1
1	0	0	1	0
1	0	1	0	1
1	0	1	1	0
1	1	0	0	1
1	1	0	1	0
1	1	1	0	1
1	1	1	1	1



AIM:

To Draw the Logic Circuit and implement using Arduino
for the following Boolean Expression :
 $F(x_3, x_2, x_1, x_0) = (x_3' + x_2) \cdot x_1 + x_0'$

Components:

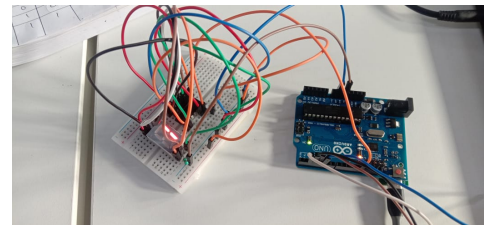
S.No	Component	Number
1	Arduino	1
2	Bread Board	1
3	Jumer Wires(M-M)	10
4	7447 IC	1
5	Seven segment display	1

Procedure:

- 1) First make the 2,3,4,5 digital pins of arduino as input pins and declare the 13 pin as output pin.
- 2) Write the given logic in code and upload in to the arduino.
- 3) Connect the output pin i.e pin 13 of arduino to the one of the input of 7447 IC i.e pin A and the remaining input pins(pins:D,B,C) are connected to ground.
- 4) Connect the outputs of IC 7447 i.e a,b,c,d,e,f,g,h to the corresponding pins of seven segment display.
- 5) The out put will be displayed in seven segment display either 1 or 0 corresponds to the out given boolean expression.

OUTPUTS:

The output is displayed as 0 in seven segment display
corresponds to the given inputs.



The output is displayed as 1 in seven segment display
corresponds to the given inputs.

Conclusion:

Hence I have drawn the logic circuit for the given logic
expression and I have implemented the circuit in arduino
and verified the outputs.

Code is available in the following directory

https://github.com/Mannava123455/Mannava-Venkatasai/blob/main/Fwc_assignment_1_idc/codes/src/main.cpp