

ASSIGNMENT-1

Name : Mannava Venkatasai

Roll : FWC22030

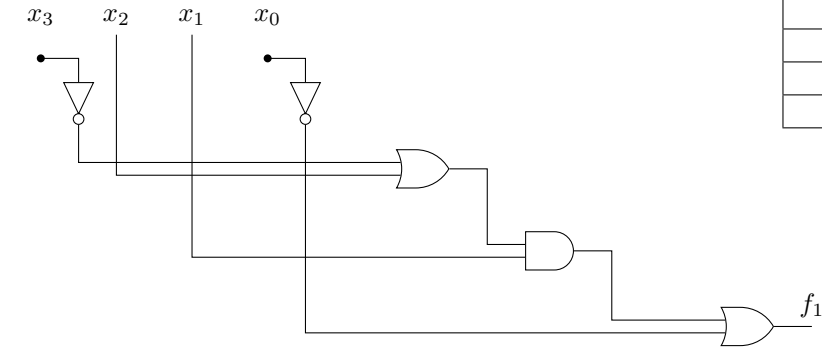
Email : venkatasaimannava9948@gmail.com

PROBLEM STATEMENT:

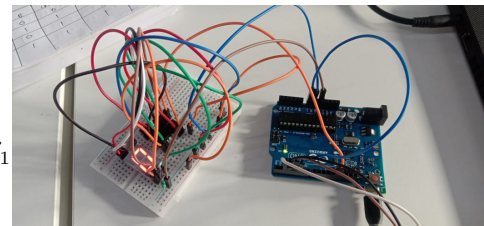
Draw the Logic Circuit for the following Boolean

Expression : $f(x_3, x_2, x_1, x_0) = (x_3' + x_2).x_1 + x_0'$

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



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

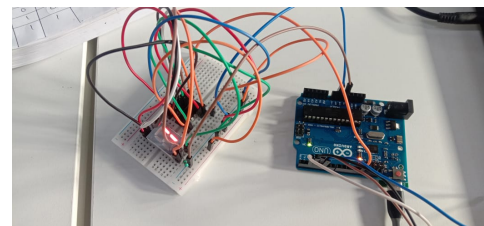
AIM:

To Draw the Logic Circuit and implement using Arduino for the following Boolean Expression :

$F(x_3, x_2, x_1, x_0) = (x_3' + x_2).x_1 + x_0'$

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



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

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) 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.
- 3) Connect the outputs of IC 7447 i.e a,b,c,d,e,f,g,h to the corresponding pins of seven segment display.
- 4) The out put will be displayed in seven segment display either 1 or 0 corresponds to the out given boolean expression.

OUTPUTS:

Truthtable:

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_AVR_GCC/main.c