

Boolean Expression to its simplest form using K-map

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Contents

1 Introduction	1
2 karnaugh-map	1
3 Components	1
4 Truth table for given expression	1
5 Connections and results	1
5.1 Code Link	1

1 Introduction

The external input signals A, B and C.(A B C , and are not available). The +5V power supply (logic 1) and the ground (logic 0) are also available. The output of the circuit is $X = A'B' + A'B'C'$.

2 karnaugh-map

	BC			
	00	01	11	10
0	1	0	1	1
1	0	0	0	0

$$X = A'C' + A'B$$

3 Components

Component	value	quantity
Resistor	220 ohm	1
Arduino	UNO	1
LED		1
Bread board		1
Jumper wires	M-M	10

Table 1:

4 Truth table for given expression

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

Table 2:

5 Connections and results

Also make connections to arduino UNO ,led and inputs based on table3.

Arduino UNO	2	3	4	8	gnd
Input	A	B	C		
led				+	-

Table 3:

Sample input	A	B	C	LED
1	0	0	0	ON
2	0	0	1	OFF

Table 4:

5.1 Code Link

<https://github.com/Harsha-Arza/assignIDE/blob/main/codes/src/main.cpp>