

Arm Assignment

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IITH Future Wireless Communication (FWC)

ASSIGNMENT

1 Problem

Reduce the following Boolean Expression to its simplest form using K-Map : $E(U,V,Z,W) = (2, 3, 6, 8, 9, 10, 11, 12, 13)$

2 Components

S.No	Component	Number
1.	Vaman Board	1
2.	Bread Board	1
3.	Jumer Wires(F-M)	10
4.	LED	1
5.	Resistor(150 ohm)	1

3 K-Map

From the given data the minterms are 2,3,6,8,9,10,11,12,13.

ZY	XW			
	00	01	11	10
00	0	0	1	1
01	0	0	0	1
11	1	1	0	0
10	1	1	1	1

ZY	XW			
	00	01	11	10
00	0	0	1	1
01	0	0	0	1
11	1	1	0	0
10	1	1	1	1

4 Truth Table

U	V	Z	W	E
0	0	0	0	0
0	0	0	1	0
0	0	1	0	1
0	0	1	1	1
0	1	0	0	0
0	1	0	1	0
0	1	1	0	1
0	1	1	1	0
1	0	0	0	1
1	0	0	1	1
1	0	1	0	1
1	0	1	1	1
1	1	0	0	1
1	1	0	1	1
1	1	1	0	0
1	1	1	1	0

Truth Table

The minimized expression is $E = (UZ' + V'Z + U'ZW')$

5 Procedure

- 1.After executing the following code using make, a binary file is generated with .bin extension in the output directory.
- 2.Now from the termux, using scp protocol, send the generated bin file to the laptop.
- 3.There we are supposed to flash the .bin file into the ARM through the terminal.
- 4.After flashing, reset the Vaman board.
- 5.Make connections between the LED and ARM board

using jumper wires.

6. Now check the output with reference to the truth table present above.

6 Execution

*Verify the above truth table by using the minimized expression in the following code.

<https://github.com/gowripriya-2002/FWC/blob/main/Arm/Codes/src/main.c>

7 Conclusion

Hence the given boolean expression is minimized and verified its functionality by using ARM.