Verification of First Distributive law of Boolean Algebra in AVR-GCC

Beere Suresh

***Abstract*—This document shows the verification of first distributive law of Boolean Algerbra through Truth Table**

I. Statement

This law states that X.(Y+Z) = X.Y + X.Z

This law can be verified by the Truth table mentioned below:

X	Y	Z	Y+Z	X.(Y+Z)	X.Y	X.Z	X.Y + X.Z
0	0	0	0	0	0	0	0
0	0	1	1	0	0	0	0
0	1	0	1	0	0	0	0
0	1	1	1	0	0	0	0
1	0	0	0	0	0	0	0
1	0	1	1	1	0	1	1
1	1	0	1	1	1	0	1
1	1	1	1	1	1	1	1

TABLE I
1.1 Truth Table

II. Components

Component	Value	Qunatity
Arduino	UNO	1
Jumper Wires	M-M	7
BreadBoard		1
LED		2

TABLE II
1.1 Components

III. Hardware

Problem 2.1. Make connections between the Arduino UNO, and LED's as shown in Table 2.1

Arduino	8	9	GND
LED 1	+ ve		- ve
LED 2		+ ve	- ve

TABLE III
2.1 Connections

IV. Software

Problem 3.1 Now execute the following by using the make command which uses the Makefile and verify the outputs as mentioned in Table 2.1 by modifying the inputs X, Y, Z.

wget https://github.com/sureshoye/AVRGCC-Assignment/blob/main/main.c

TABLE IV

Note: You will observe that both LED bulbs glow together.

Problem 3.2 Now execute the above program by using the 'make' command and verify the outputs by changing the last digits of X, Y and Z.