भारतीय प्रौद्योगिकी संस्थान हैदराबाद
Indian Institute of Technology Hyderabad

Avr-Gcc Assignment

Bynaboyina Aiswarya
Roll No: FWC22295
aiswaryabaiswarya61@gmail.com

I. ABSTRACT

This paper explains about the question tests the validity of Boolean identities involving the XOR $(\oplus)$ operator. Four expressions are given, and the objective is to identify which one does not represent a valid identity. The provided options explore properties such as associativity, distributivity, and specific conditions for XOR operations.

1) $(x \oplus y) \oplus z = x \oplus (y \oplus z)$
2) $(x + y) \oplus z = x \oplus (y + z)$
3) $x \oplus y = x + y, if xy = 0$
4) $x \oplus y = (xy + x'y')'$

The question can be implemented using avr-gcc with arduino uno and led.

II. COMPONENTS

The required components list is given in Table: I., pin diagram of Led is shown in Fig.1.

Components	Value	Quantity
Arduino	UNO	1
led		1
Jumper Wires		20
Breadboard		1

TABLE I

III. PROCEDURE

1) Make connections of arduino uno to led as shown in below fig-2.

Arduino UNO	LED
pin-13	Anode
gnd	cathode

TABLE II

2) pin configuration of led.
3) Give two inputs called x and y seperately in bread board and make short connections of inputs and vcc and gnd.

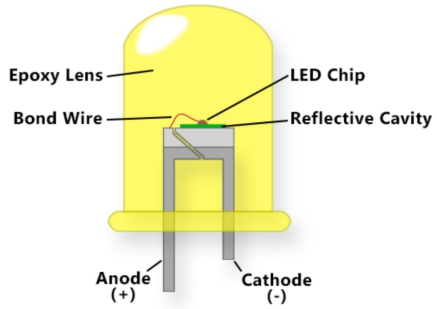

Fig. 1.

4) By providing proper inputs observe the blinking of led for output 1 and 0 as per below truth table of xor operation.

x	y	x ⊕ y
0	0	0
0	1	1
1	0	1
1	1	0

TABLE III

5) Execute the avr-gcc code in nvim editor using make command.
6) After upload the code into hardware setup using arduino IDE platform with .hex file.

IV. RESULTS

1) Download the codes given in the link below and execute them to see the output as shown in figure 2.
2) https://github.com/BynaboyinaAiswarya/Fwc-/blob/main/Avr-gcc/main.c

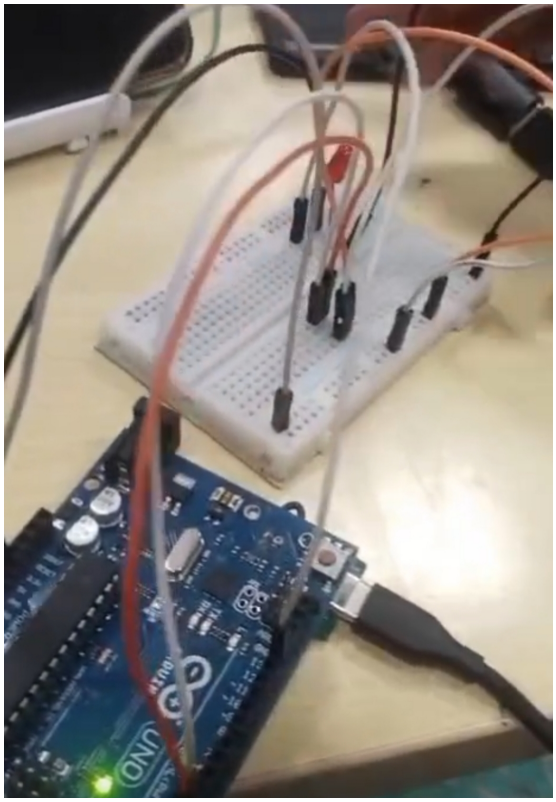

Fig. 2.

V. CONCLUSION

Hence implementation of avr-gcc code in arduino uno and the verification of xor truth tabe is done using led.