भारतीय प्रौद्योगिकी संस्थान हैदराबाद
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Assembly Assignment

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I. ABSTRACT

Universal logic gates are NOR and NAND Gates. They can implement any Boolean function. These gates are essential in designing digital circuits. NOR and NAND Gates form the complete set of universal gates.

II. COMPONENTS

The required components list is given in Table: I. Flip-Flop IC 7474 diagram is shown in Fig.1.

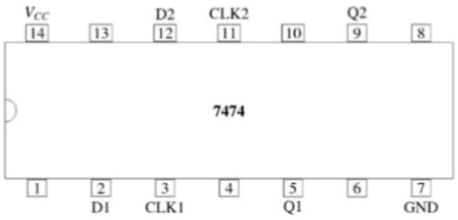

Fig. 1.

Components	Value	Quantity
IC	7474	1
LEDs		1
Arduino	UNO	1
Jumper Wires		10
Breadboard		1

TABLE I

III. PROCEDURE

1) Connect the Led's to the Arduino uno.
2) Give the inputs manually using jumper wires.
3) Truth Table for NAND and NOR gates.
4) Check the outputs by changing inputs as per truth table.
5) Execute the arduino code using the pio run command in nvim editor.
6) After upload the code into hardware setup using arduino IDE platform.

A	B	A NOR B	A NAND B
0	0	1	1
0	1	0	1
1	0	0	1
1	1	0	0

TABLE II

IV. RESULT

Download the cod given in the link below and execute them to see the output as shown in Fig.2 by placing the LED at the output pin of 7474 IC.
https://github.com/YalalaBhavani/fwc/blob/main/Assembly/assembly.tex

V. CONCLUSION

The D-Flip Flop is a good application in order to use it for registers. Here, the sequential circuit is combined with the combinational circuit of XOR gates to get the output. Therefore, we can design several circuits and can be implemented using Arduino and Platformio.

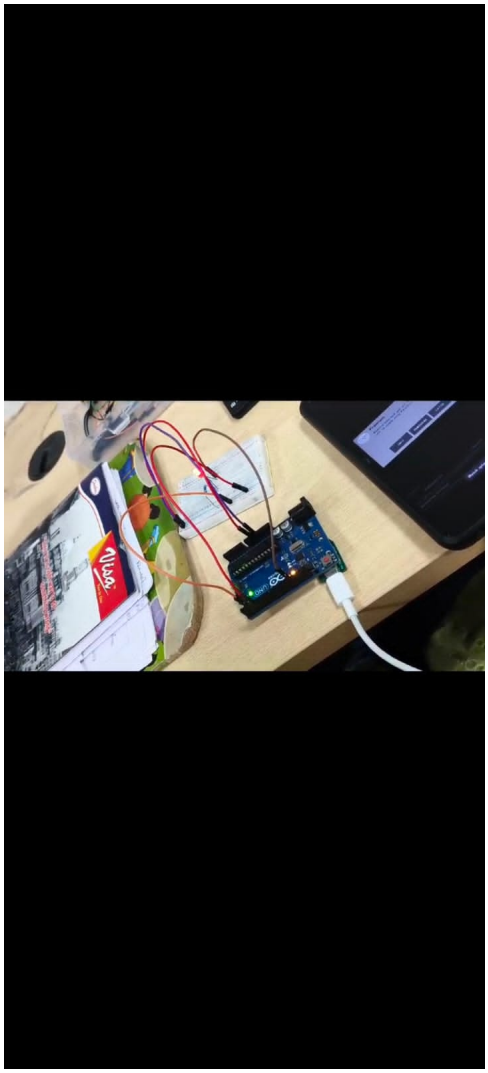

Fig. 2.