



EXPERIMENT - 3

Switching Theory and Logic Design (STLD)

Aim

To verify the truth tables of all logical gates(AND, OR, NOT, NAND, NOR, XOR, XNOR) using NOR gate only.

Syeda Reeha Quasar

14114802719

3C7

EXPERIMENT - 2

AIM:

To verify the truth tables of all logical gates (AND, OR, NOT, NAND, NOR, XOR, XNOR) using NOR gate only.

Hardware and Software Apparatus Required

Hardware:

- ❖ Power supply, Bread Board, Connecting Wires, respective IC, LED, Wire Cutter.
- ❖ Circuit is designed on bread board using Integrated Chips (ICs), Voltage supply and LEDs.
- ❖ The set-up of apparatus and working of the circuit were demonstrated via recorded videos.

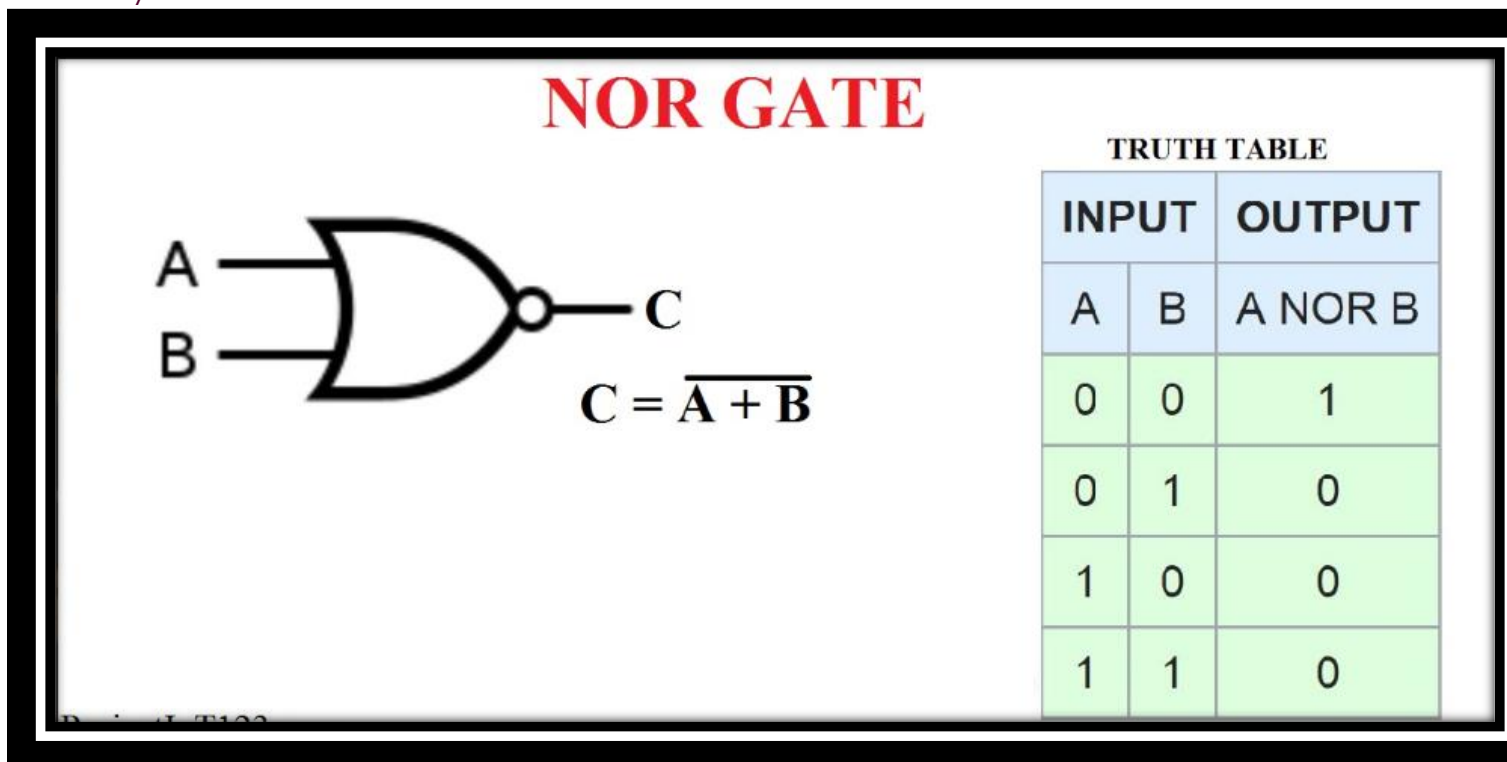
Software Simulation:

The schematic models of the desired circuits will be stimulated on MULTISIM (Free Software), easily accessible at www.multisim.com.

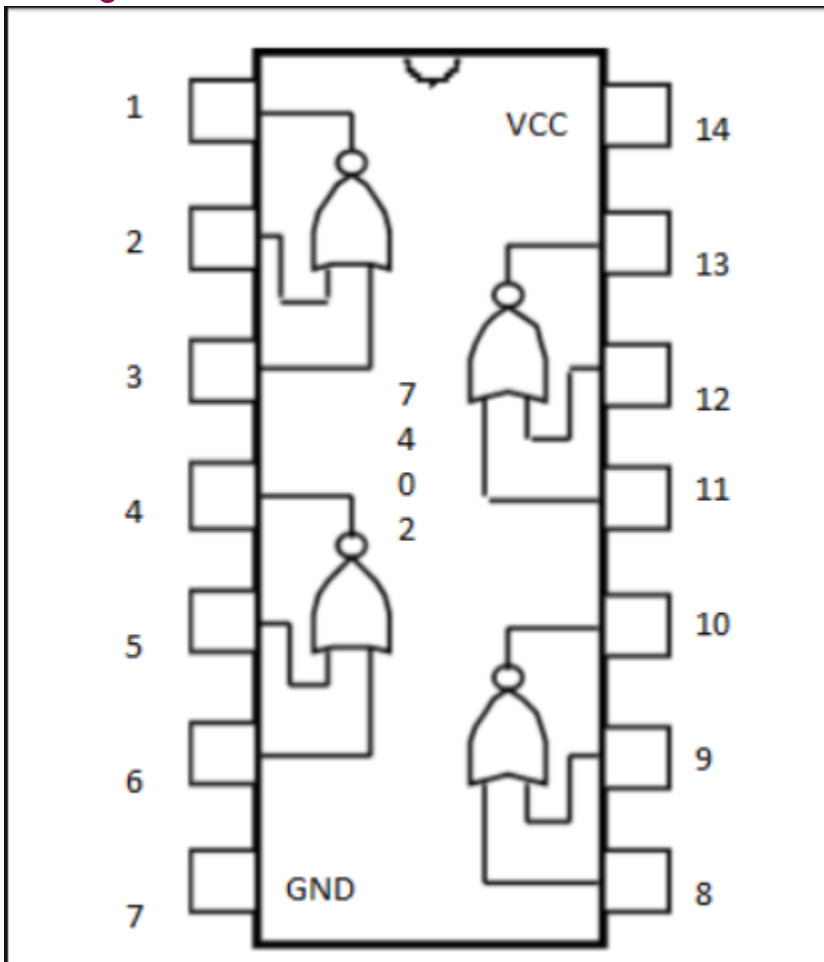
Components used – Source (Clock Voltage), Passive elements (resistor), Digital components (AND, OR, NAND, NOR, XOR, XNOR, Inverter), Probe for Analysis and annotation (Digital), Schematic connectors (Ground)

Theory:

Circuit Symbol and Truth table:



Pin Diagram:



NOR gate:


The NOR gate is a digital logic gate that implements logical NOR - it behaves according to the truth table to the right. A HIGH output (1) results if both the inputs to the gate are LOW (0); if one or both input is HIGH (1), a LOW output (0) results.

NOR is the result of the negation of the OR operator. It can also in some senses be seen as the inverse of an AND gate. NOR is a functionally complete operation—NOR gates can be combined to generate any other logical function. It shares this property with the NAND gate. By contrast, the OR operator is monotonic as it can only change LOW to HIGH but not vice versa.


Procedure followed on MULTISIM:

1. LOG IN ON www.multisim.com
2. CREATE THE CIRCUIT
3. SAVE THE CIRCUIT
4. SAVE THE SCREENSHOTS FOR
 - i. INPUT & OUTPUT WAVEFORMS (ALONG WITH YOUR ID ON TOP LEFT)
 - ii. CIRCUIT (ALONG WITH YOUR ID ON TOP LEFT)

multisim.com/content/34Gy2qdFiydkzN7RhQqTJ/not-from-nor/



[FEATURES](#)
[PRICING](#)
[CIRCUITS](#)
[RESOURCES](#)


HELLO, REEHA

[CREATE CIRCUIT](#)

NOT from NOR

★ Favorite 0
📄 Copy 0
👁 Views 1

OPEN CIRCUIT

DELETE

EDIT DETAILS

<


>

^

v

🔍

MULTISIM SHARE



SOCIAL SHARE

</>

🔗

✉

f


🐦

g+

📌

in

CREATOR



reeha

20 Circuits

DATE CREATED

33 minutes ago

LAST MODIFIED


33 minutes ago

TAGS

This circuit has no tags currently.

EDIT TAGS

MOST POPULAR CIRCUITS




Online simulator

by ElectronInferno

👁 104010

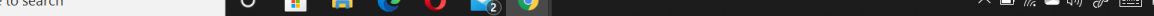
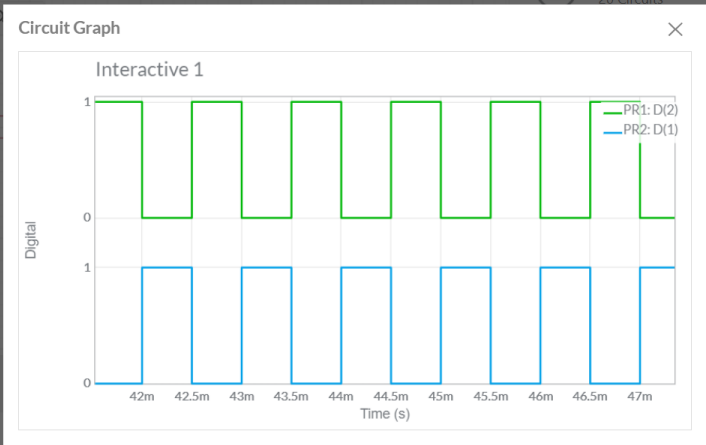
★ 11

📄 358



Simple Buck Converter

by OStep



The screenshot shows the Windows taskbar at the bottom with the Start button, search bar, and several pinned applications including File Explorer, Edge, Firefox, Mail, and Chrome. The background window displays a circuit description for a "Digital to Analog Converter - DAC by SiLRing". It includes a circuit diagram and a table of component values.

Component	Value
R1	10k
R2	10k
R3	10k
R4	10k
R5	10k
R6	10k
R7	10k
R8	10k
R9	10k
R10	10k
R11	10k
R12	10k
R13	10k
R14	10k
R15	10k
R16	10k
R17	10k
R18	10k
R19	10k
R20	10k
R21	10k
R22	10k
R23	10k
R24	10k
R25	10k
R26	10k
R27	10k
R28	10k
R29	10k
R30	10k
R31	10k
R32	10k
R33	10k
R34	10k
R35	10k
R36	10k
R37	10k
R38	10k
R39	10k
R40	10k
R41	10k
R42	10k
R43	10k
R44	10k
R45	10k
R46	10k
R47	10k
R48	10k
R49	10k
R50	10k
R51	10k
R52	10k
R53	10k
R54	10k
R55	10k
R56	10k
R57	10k
R58	10k
R59	10k
R60	10k
R61	10k
R62	10k
R63	10k
R64	10k
R65	10k
R66	10k
R67	10k
R68	10k
R69	10k
R70	10k
R71	10k
R72	10k
R73	10k
R74	10k
R75	10k
R76	10k
R77	10k
R78	10k
R79	10k
R80	10k
R81	10k
R82	10k
R83	10k
R84	10k
R85	10k
R86	10k
R87	10k
R88	10k
R89	10k
R90	10k
R91	10k
R92	10k
R93	10k
R94	10k
R95	10k
R96	10k
R97	10k
R98	10k
R99	10k
R100	10k

Screenshot of circuit: AND using NOR

multisim.com/content/QmcfkoXidoVHdxEdLLZitc/and-fron-nor/

MultisimLive

FEATURES PRICING CIRCUITS RESOURCES

HELLO, REEHA CREATE CIRCUIT

AND fron NOR

Favorite 0 Copy 0 Views 1

OPEN CIRCUIT DELETE EDIT DETAILS

CREATOR: reeha 20 Circuits

DATE CREATED: 25 minutes ago

LAST MODIFIED: 25 minutes ago

TAGS: This circuit has no tags currently. EDIT TAGS

MOST POPULAR CIRCUITS

- Online simulator by ElectroInferno (104010 views, 11 stars, 358 likes)
- Simple Buck Converter by OStep

Circuit Graph

Interactive 1

Digital

Time (s)

50m 51m 52m 53m 54m 55m 56m 57m

PR1: D(3)
PR2: D(4)
PR3: D(5)

CIRCUIT DESCRIPTION

No description has been provided for this circuit. EDIT DESCRIPTION

Digital to Analog Converter - DAC by SiLRing

M M M M M

Gmail YouTube Maps WhatsApp Member Portal | Int... (6) LinkedIn 200+ Attractive Ca... AES encryption Online Compiler an... Free Vectors, Photo... How To Create a BL...

MultisimLive

FEATURES PRICING CIRCUITS RESOURCES

HELLO, REEHA CREATE CIRCUIT

OR from NOR

Favorite 0 Copy 0 Views 1

OPEN CIRCUIT DELETE EDIT DETAILS

< > ^ v 🔍

MULTISIM SHARE SOCIAL SHARE

CREATOR reeha 20 Circuits

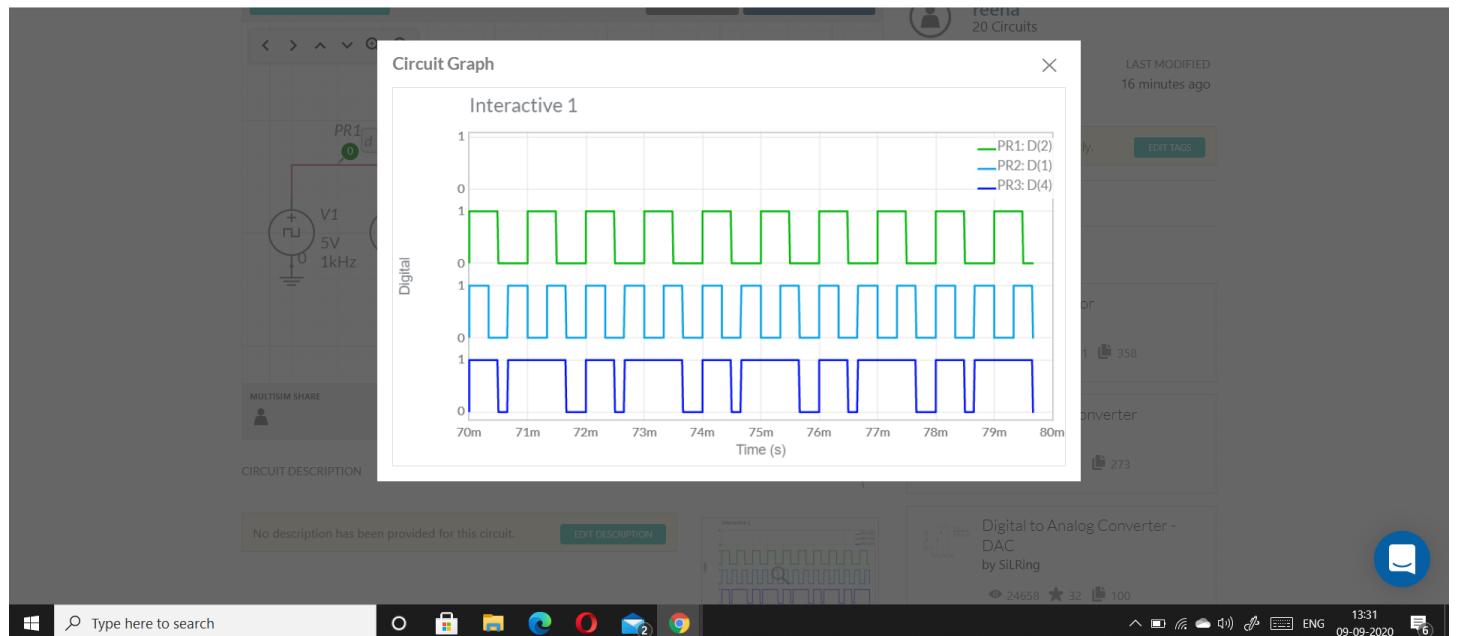
DATE CREATED 16 minutes ago LAST MODIFIED 16 minutes ago

TAGS This circuit has no tags currently. EDIT TAGS

MOST POPULAR CIRCUITS

Online simulator by ElectroInferno 104010 stars 11 358

Simple Buck Converter by OStep



MultisimLive

FEATURES PRICING CIRCUITS RESOURCES

HELLO, REEHA CREATE CIRCUIT

NAND from NOR

Favorite 0 Copy 0 Views 1

CIRCUIT PREVIEW

OPEN CIRCUIT DELETE EDIT DETAILS

The circuit diagram illustrates a logic implementation using two NOR gates (U1, U2) and two NAND gates (U3, U4). Input signals are generated by voltage sources V1 (5V, 1kHz) and V2 (5V, 1.55kHz). The output of the circuit is measured across a 1kΩ resistor.

CREATOR reeha 20 Circuits

DATE CREATED 11 minutes ago LAST MODIFIED 11 minutes ago

TAGS This circuit has no tags currently. EDIT TAGS

MOST POPULAR CIRCUITS

Online simulator by ElectroInferno 104011 stars 11 views 358

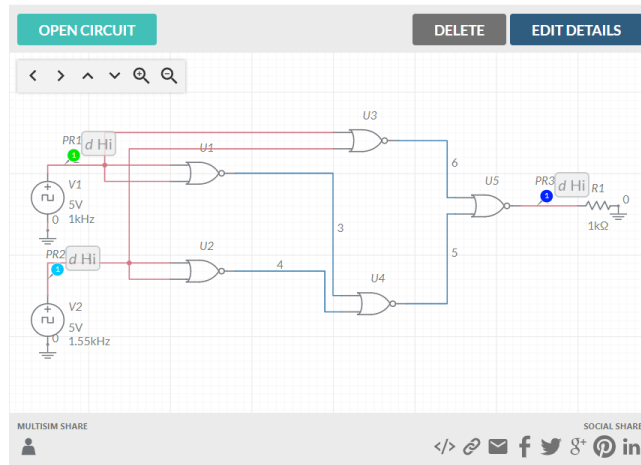
Simple Buck Converter by OStep

Circuit Graph

Interactive 1

The timing diagram displays three digital signals over time. The x-axis ranges from 37ms to 44ms. The y-axis shows digital levels (0 and 1). The signals are labeled as PR1: D(5), PR2: D(4), and PR3: D(6).

Screenshot of circuit: XOR using NOR



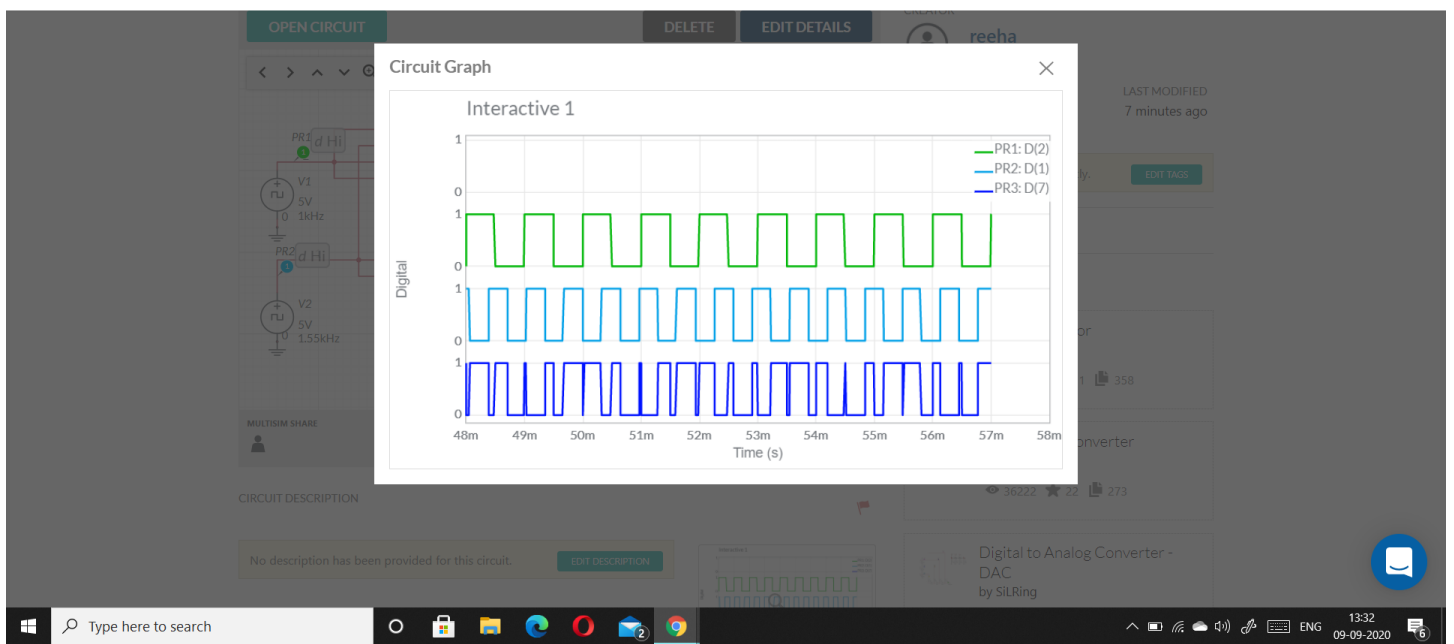
CREATOR
reeha
20 Circuits

DATE CREATED
7 minutes ago

LAST MODIFIED
7 minutes ago

TAGS
This circuit has no tags currently. [EDIT TAGS](#)

- MOST POPULAR CIRCUITS
- Online simulator by ElectroInferno
104011 11 358
 - Simple Buck Converter by OStep
36222 22 273



Screenshot of circuit: XNOR using NOR

multisim.com/content/qBQN3JmbQppry9R9GXmpTo/xnor-from-nor/

Apps Gmail YouTube Maps WhatsApp Member Portal | Int... (6) LinkedIn 200+ Attractive Ca... AES encryption Online Compiler an... Free Vectors, Photo... How To Create a BL...

MultisimLive FEATURES PRICING CIRCUITS RESOURCES HELLO, REEHA CREATE CIRCUIT

XNOR from NOR

Favorite 0 Copy 0 Views 1

OPEN CIRCUIT DELETE EDIT DETAILS

CREATOR: reeha 20 Circuits

DATE CREATED: 21 minutes ago LAST MODIFIED: 20 minutes ago

TAGS: This circuit has no tags currently. EDIT TAGS

MOST POPULAR CIRCUITS

- Online simulator by ElectroInferno 104017 stars 11 358
- Simple Buck Converter by OStep

MULTISIM SHARE SOCIAL SHARE

Windows Taskbar: Type here to search, 13:50 09-09-2020

Circuit Graph

Interactive 1

Digital

Time (s)

18.5m 19m 19.5m 20m 20.5m 21m 21.5m 22m

PR1: D(2)
PR2: D(1)
PR3: D(8)

CIRCUIT DESCRIPTION: No description has been provided for this circuit. EDIT DESCRIPTION

Digital to Analog Converter - DAC by SILRing 24658 stars 32 100

Windows Taskbar: Type here to search, 13:50 09-09-2020