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.

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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.

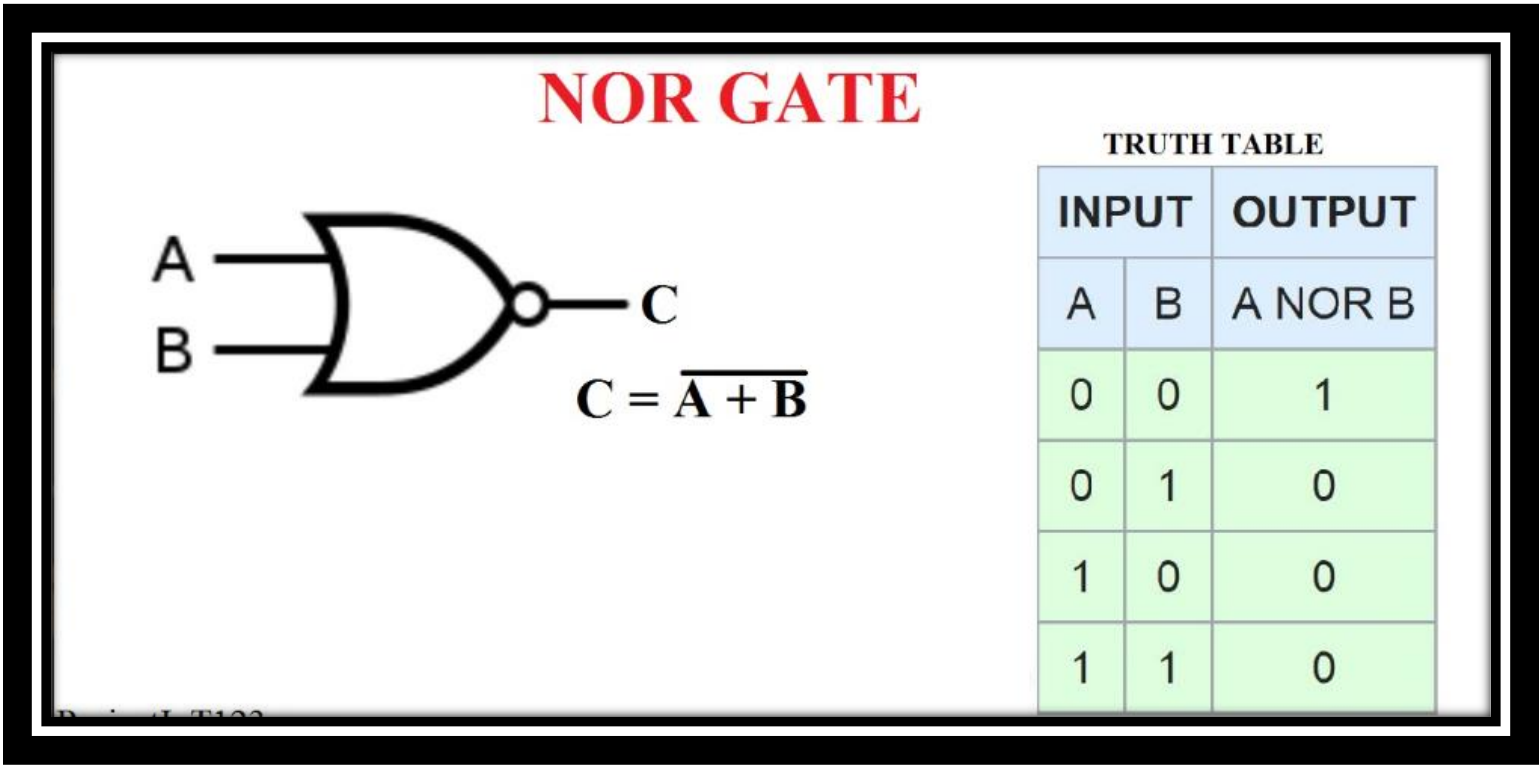
Software Simulation:

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

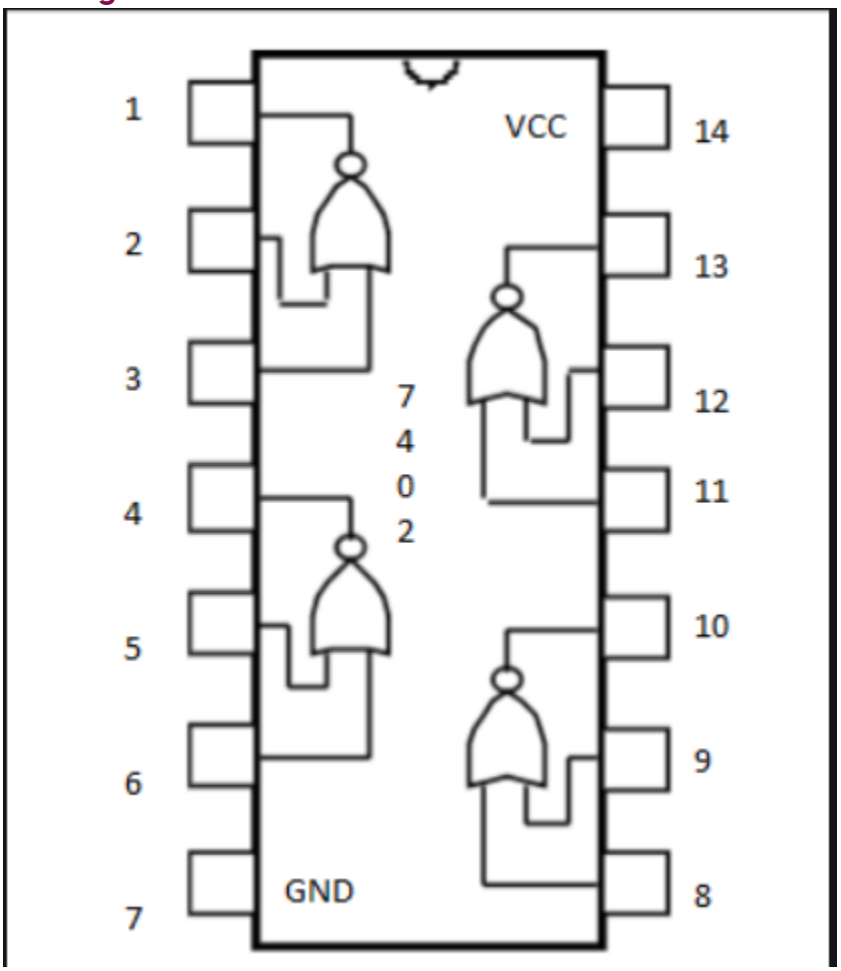
Components used – Source (Clock Voltage), Passive elements (resistor), Digital components (AND, OR, NAND, NOR, XOR, XNOR, Inverter), Probe for Analysis and annotation (Digital), Schematic connectors (Ground)

Theory:

Circuit Symbol and Truth table:



Pin Diagram:



NOR gate:

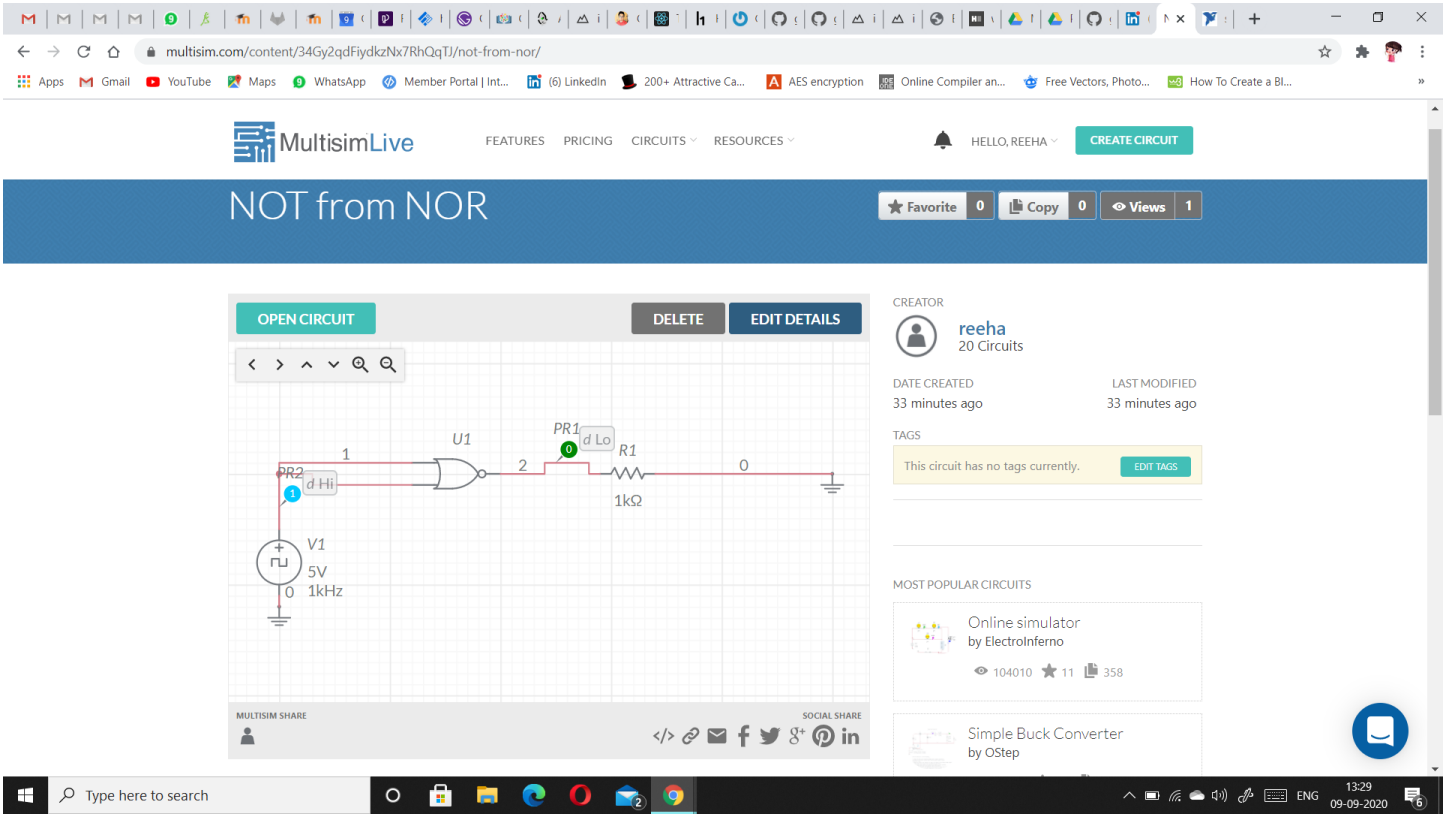
The NOR gate is a digital logic gate that implements logical NOR - it behaves according to the truth table to the right. A HIGH output (1) results if both the inputs to the gate are LOW (0); if one or both input is HIGH (1), a LOW output (0) results.

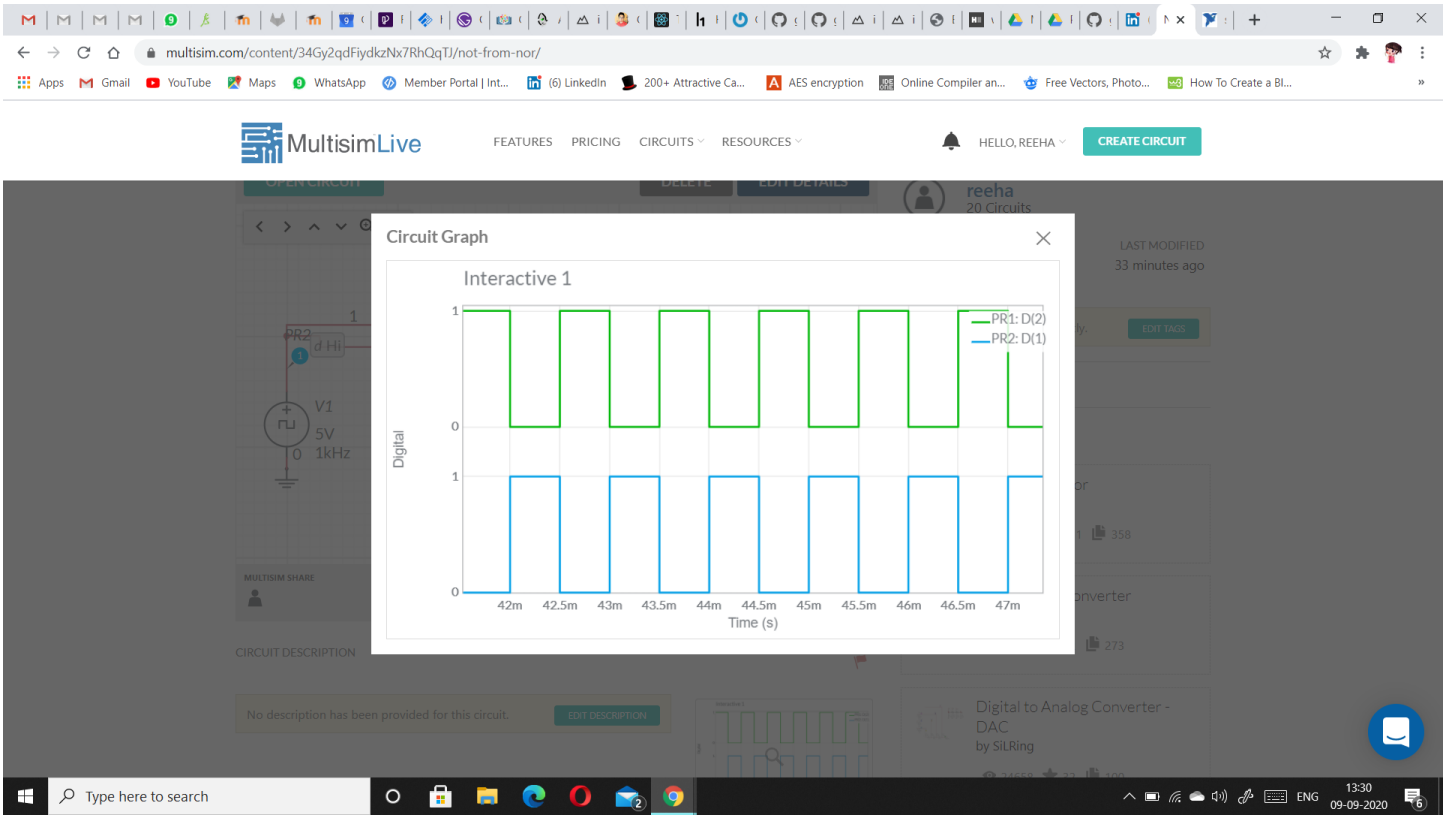
NOR is the result of the negation of the OR operator. It can also in some senses be seen as the inverse of an AND gate. NOR is a functionally complete operation—NOR gates can be combined to generate any other logical function. It shares this property with the NAND gate. By contrast, the OR operator is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

Procedure followed on MULTISIM:

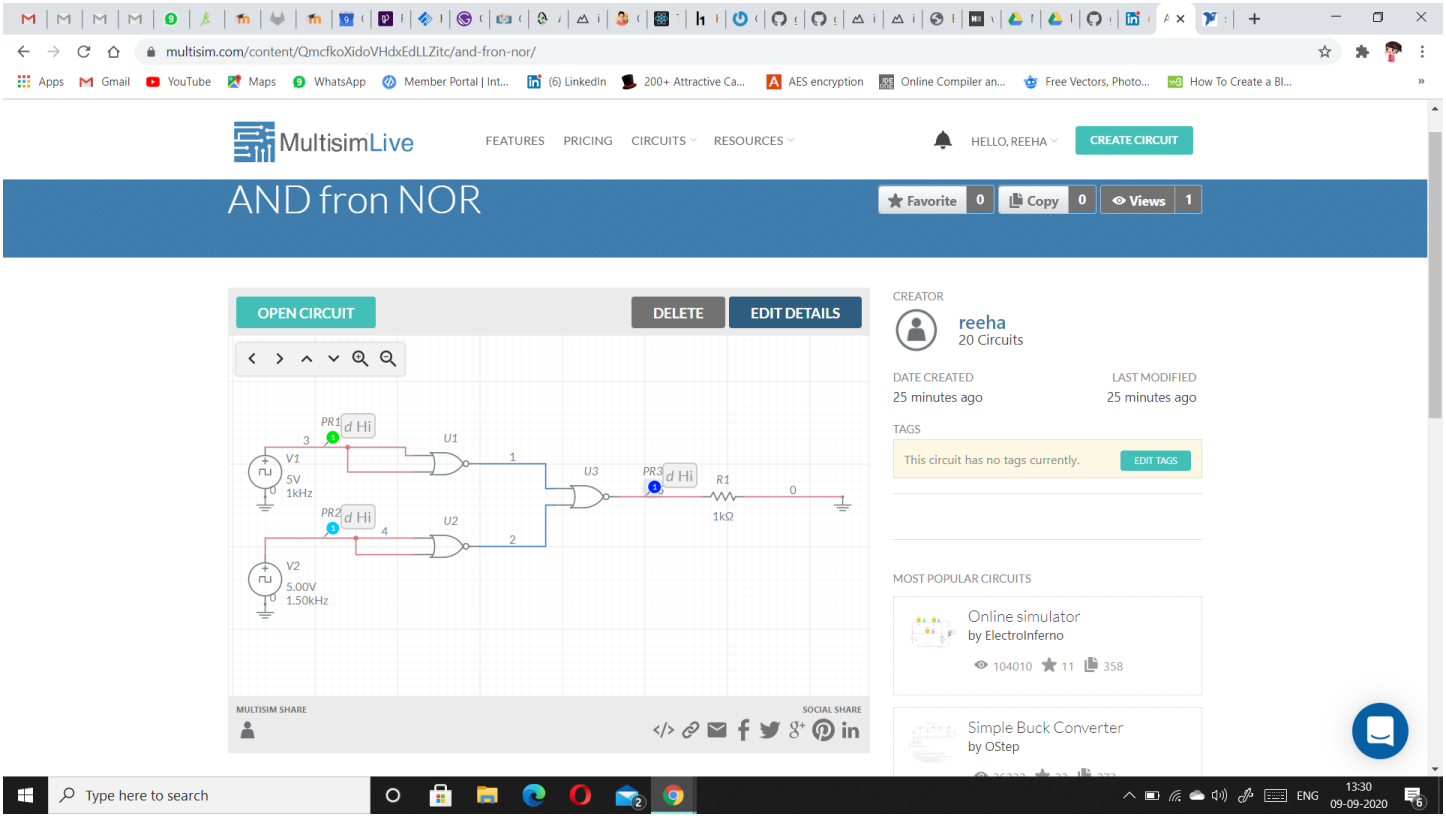
1. LOG IN ON www.multisim.com
2. CREATE THE CIRCUIT
3. SAVE THE CIRCUIT
4. SAVE THE SCREENSHOTS FOR
   i. INPUT & OUTPUT WAVEFORMS (ALONG WITH YOUR ID ON TOP LEFT)
   ii. CIRCUIT (ALONG WITH YOUR ID ON TOP LEFT)

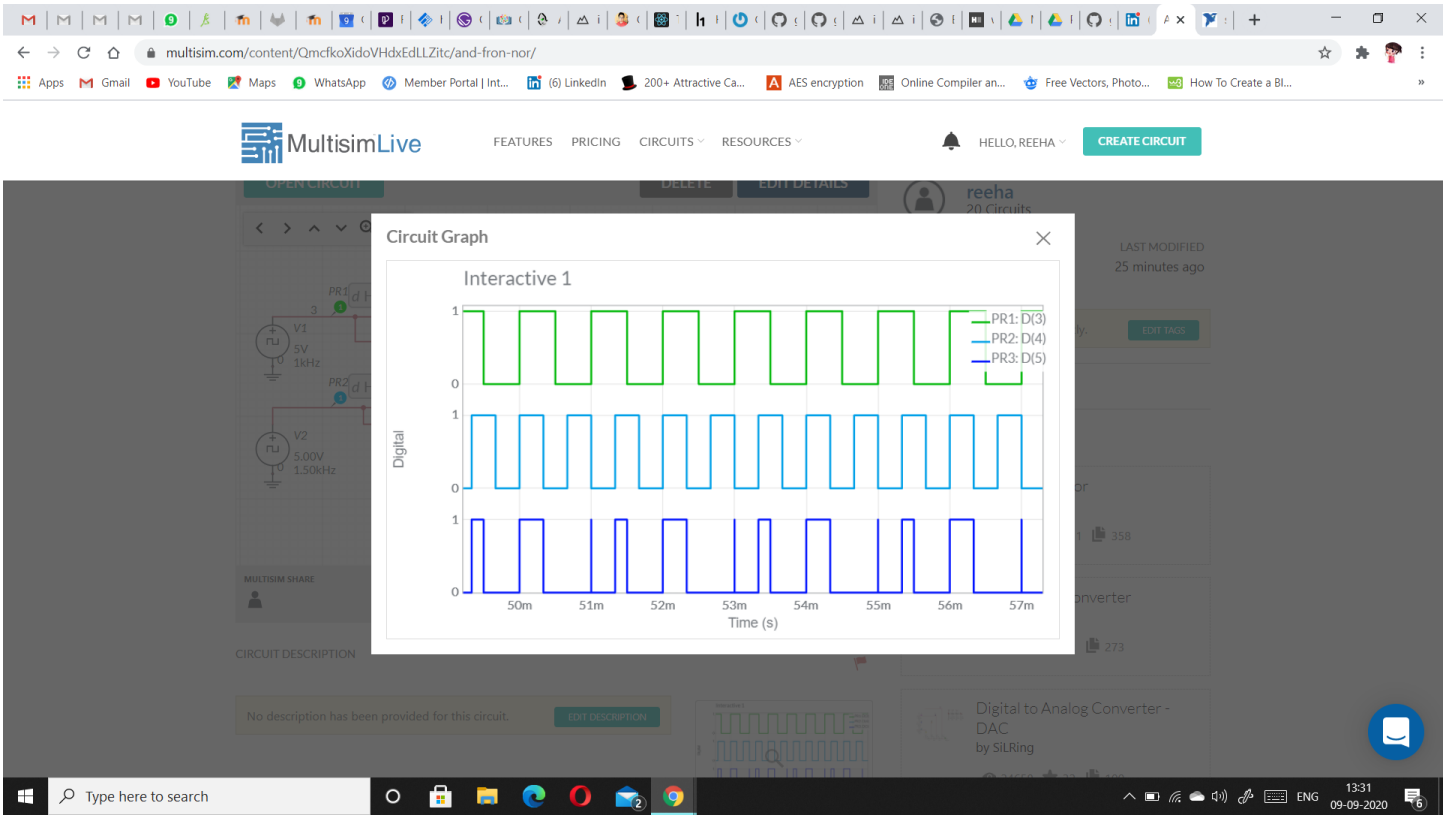
Screenshot of circuit: NOT(Inverter) using NOR



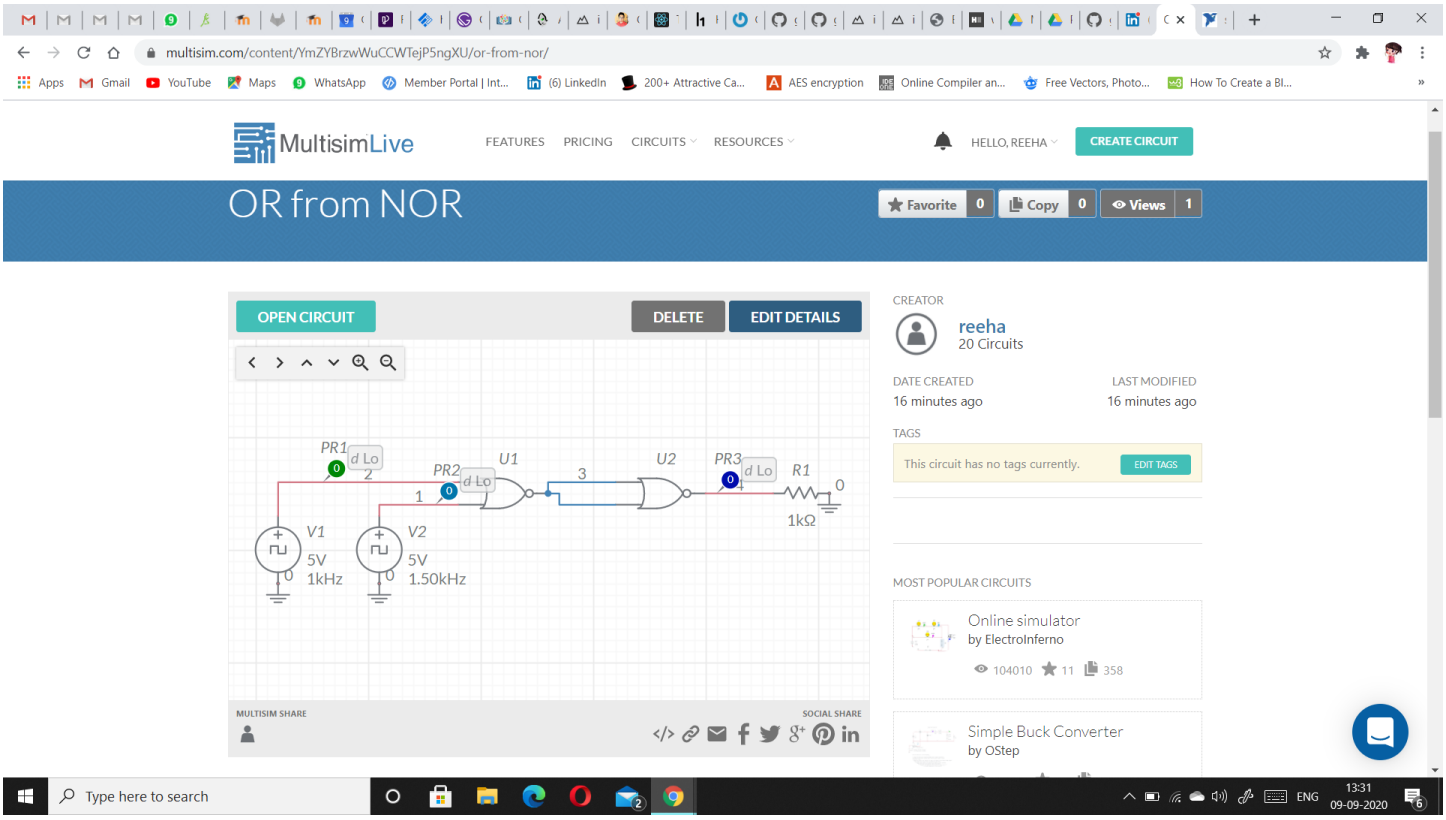


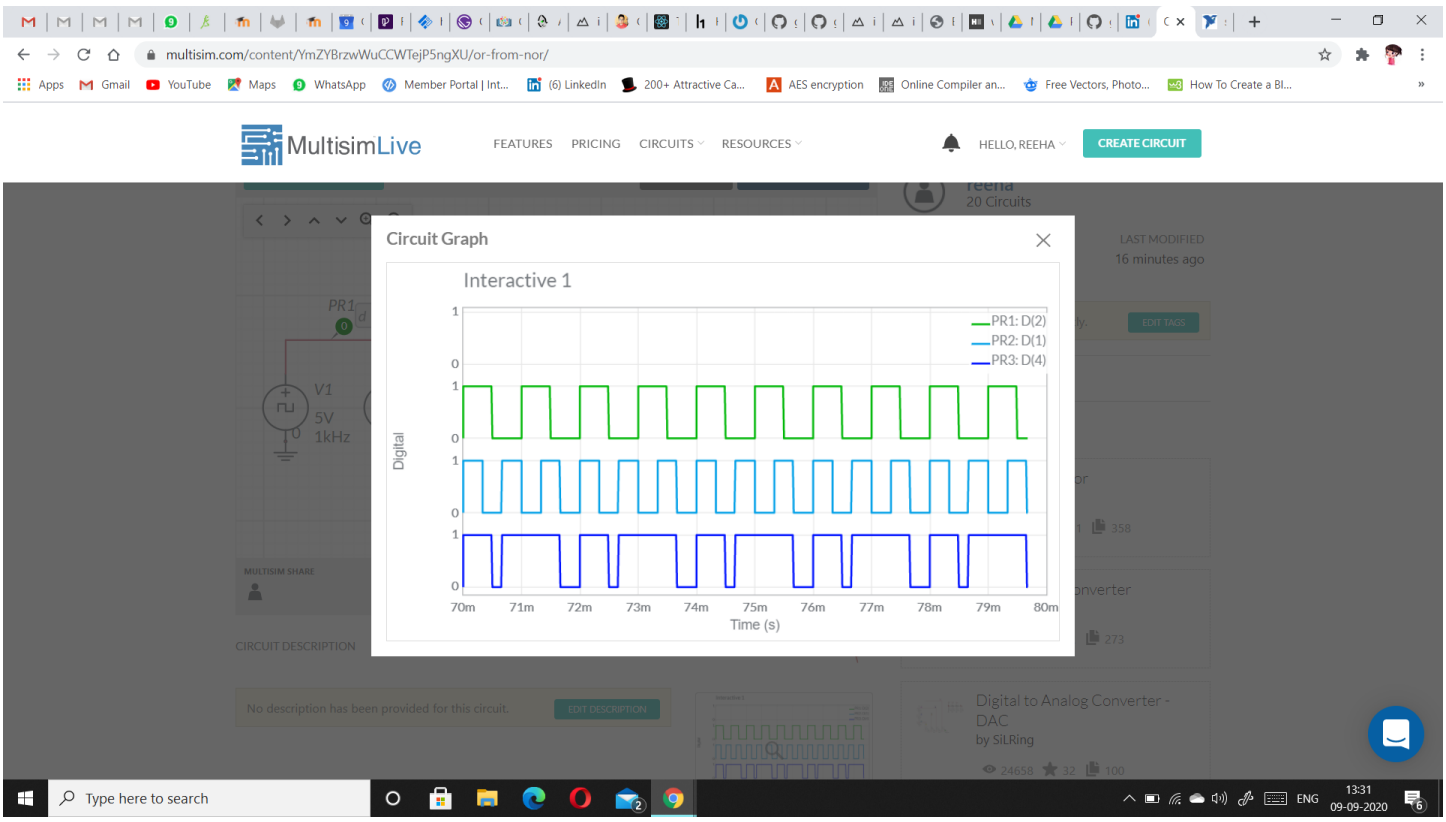
Screenshot of circuit: AND using NOR



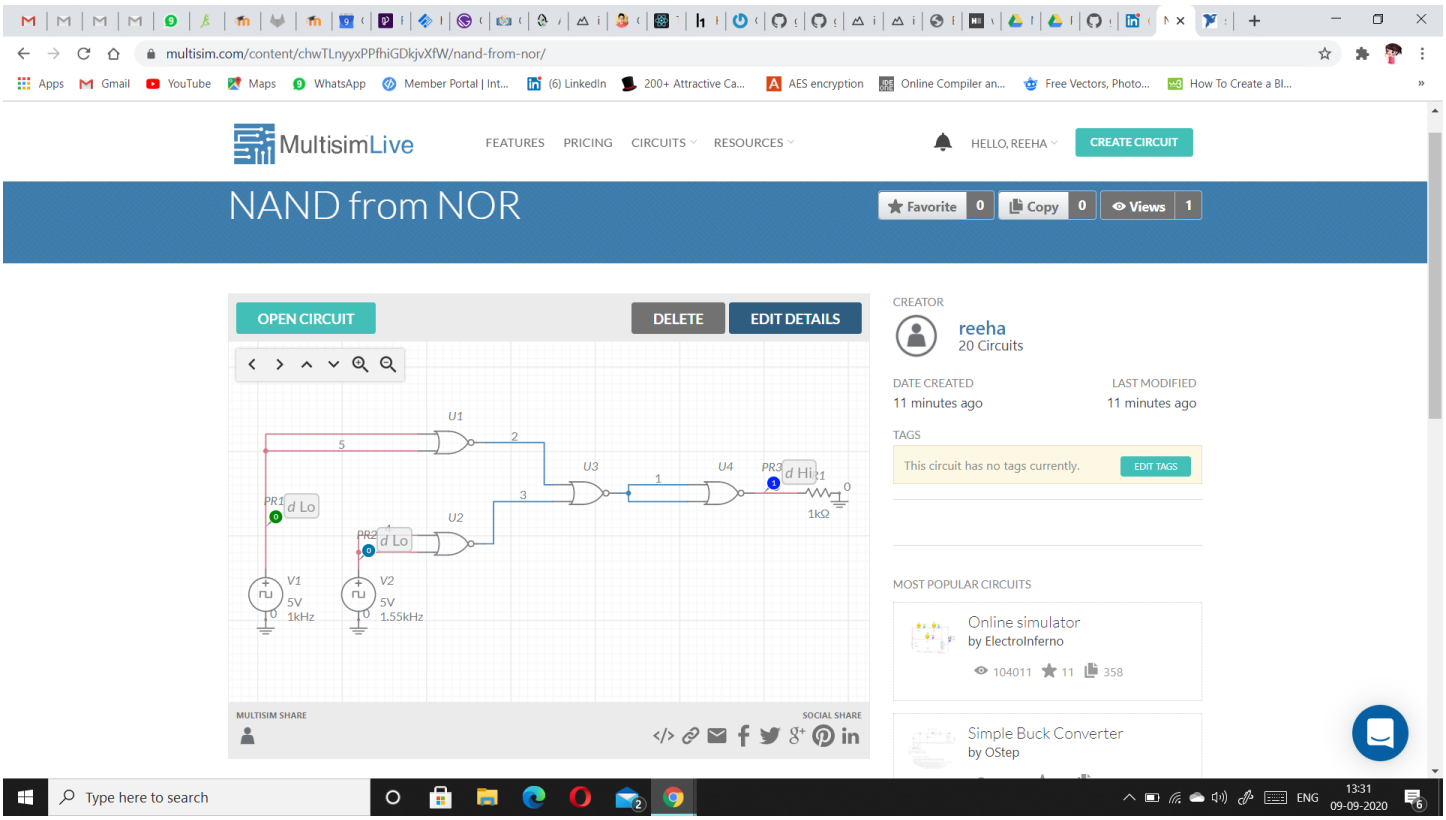


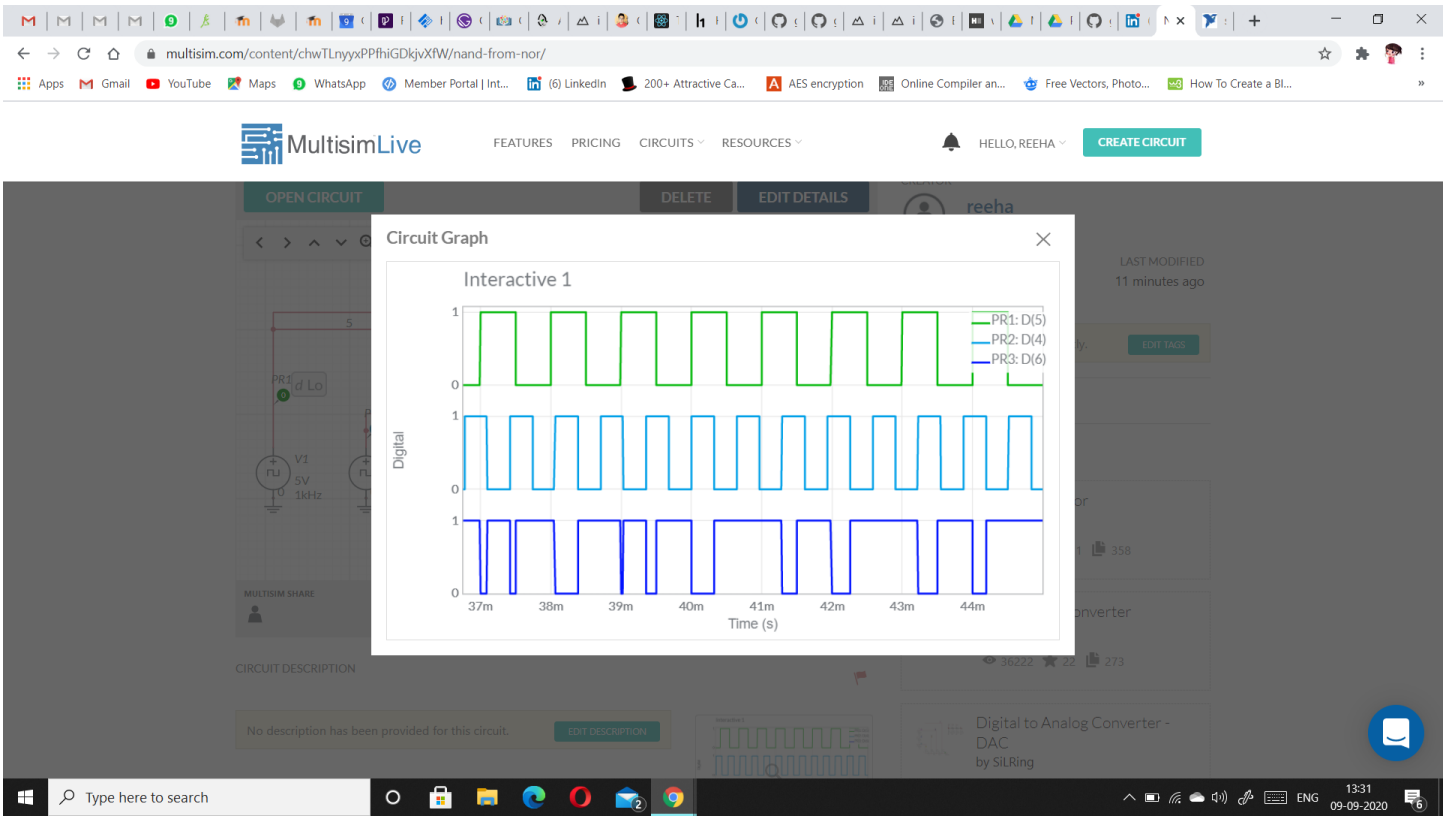
Screenshot of circuit: OR using NOR





Screenshot of circuit: NAND using NOR





Screenshot of circuit: XOR using NOR

multisim.com/content/MMThvB28E4rJAAwuFJDMjG/xor-from-nor/

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XOR from NOR

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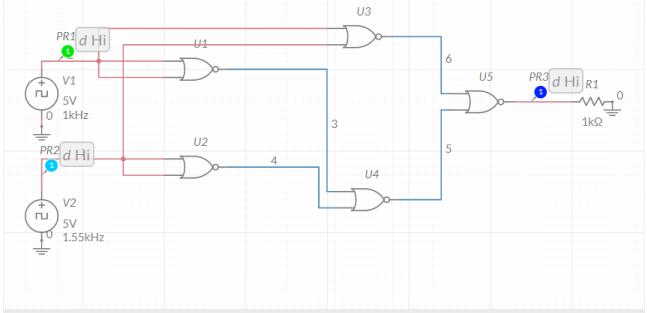
OPEN CIRCUIT DELETE EDIT DETAILS



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Simple Buck Converter
by OStep
36222 22 273

multisim.com/content/MMThvB28E4rJAAwuFJDMjG/xor-from-nor/

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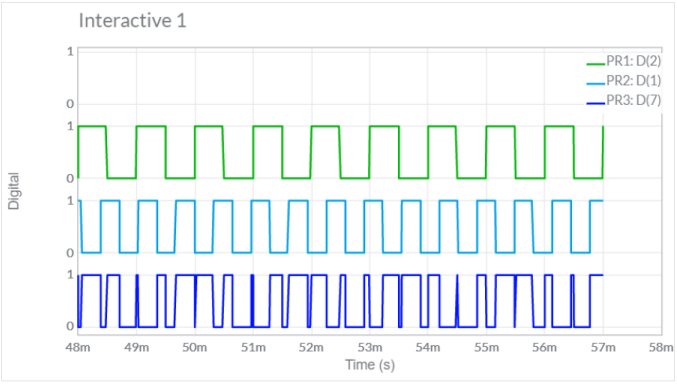
OPEN CIRCUIT DELETE EDIT DETAILS

Circuit Graph



CIRCUIT DESCRIPTION

No description has been provided for this circuit. EDIT DESCRIPTION

Digital to Analog Converter - DAC
by SiLRing

Type here to search

ENG 13:32 09-09-2020

Screenshot of circuit: XNOR using NOR