

# IMPLEMENTATION OF OR GATE USING NAND GATE

## THEORY:

NAND gate is actually a combination of two logic gates: AND gate followed by NOT gate. So its output is complement of the output of an AND gate. This gate can have minimum two inputs, output is always one. By using only NAND gates, we can realize all logic functions: AND, OR, NOT, X-OR, X-NOR, NOR. So this gate is also called universal gate.

## SCHEMATIC DIAGRAM:

Schematic diagram of the circuit:

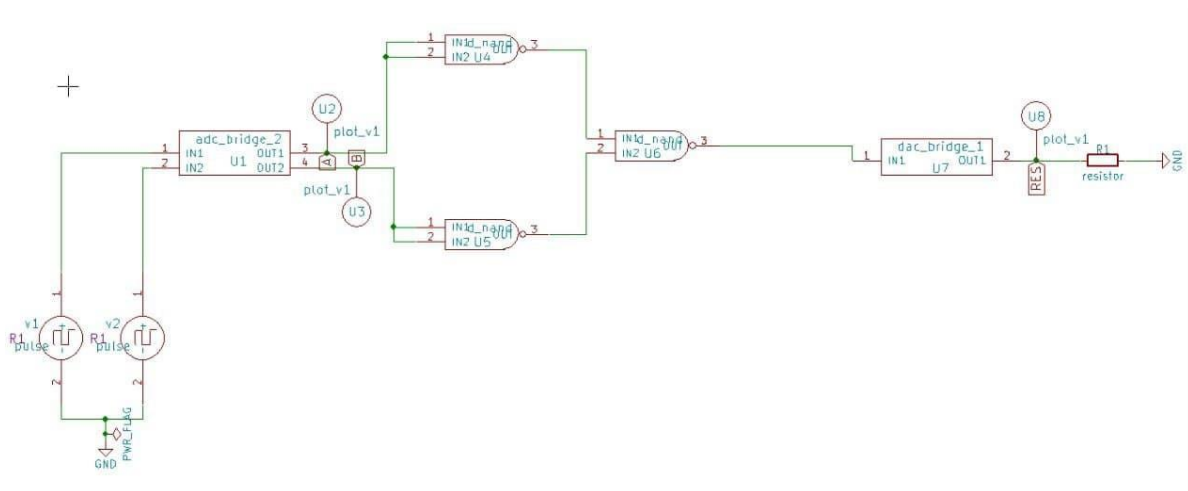


Figure 1: circuit diagram

# SIMULATION RESULT:

Ng-spice Simulation:

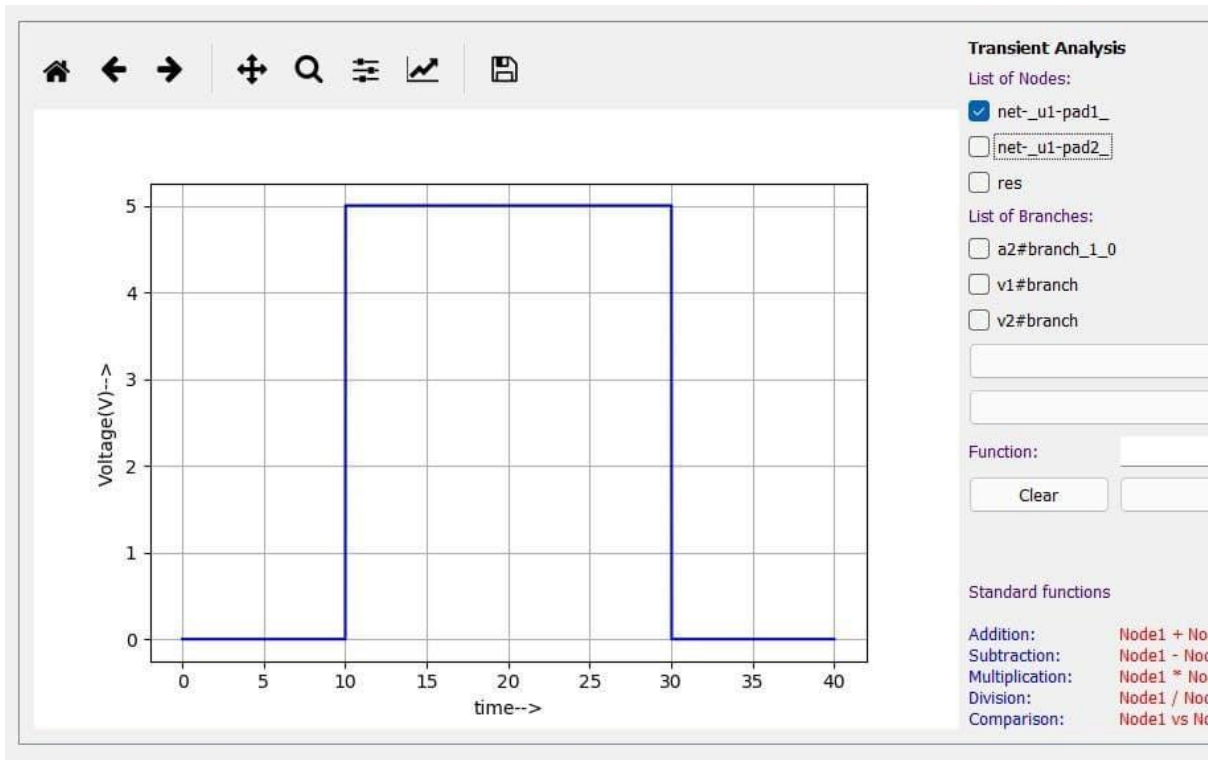


Figure 2: Voltage source A

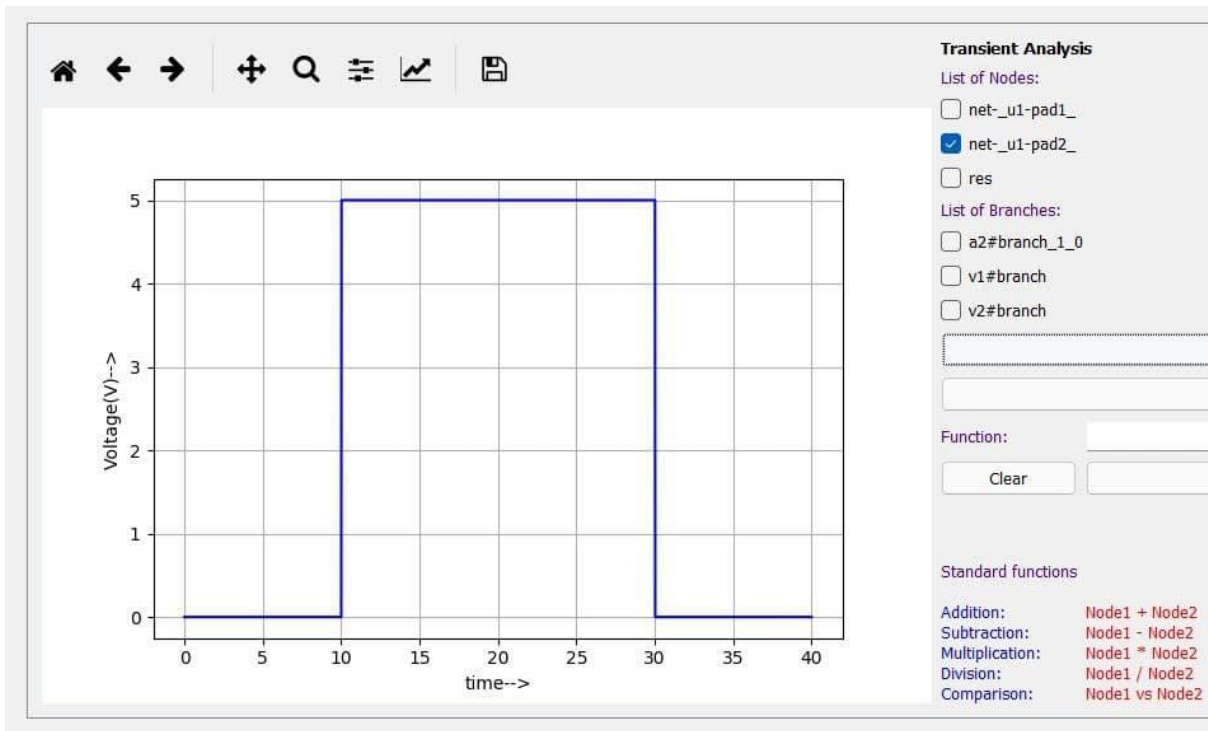


Figure 3: Voltage source B

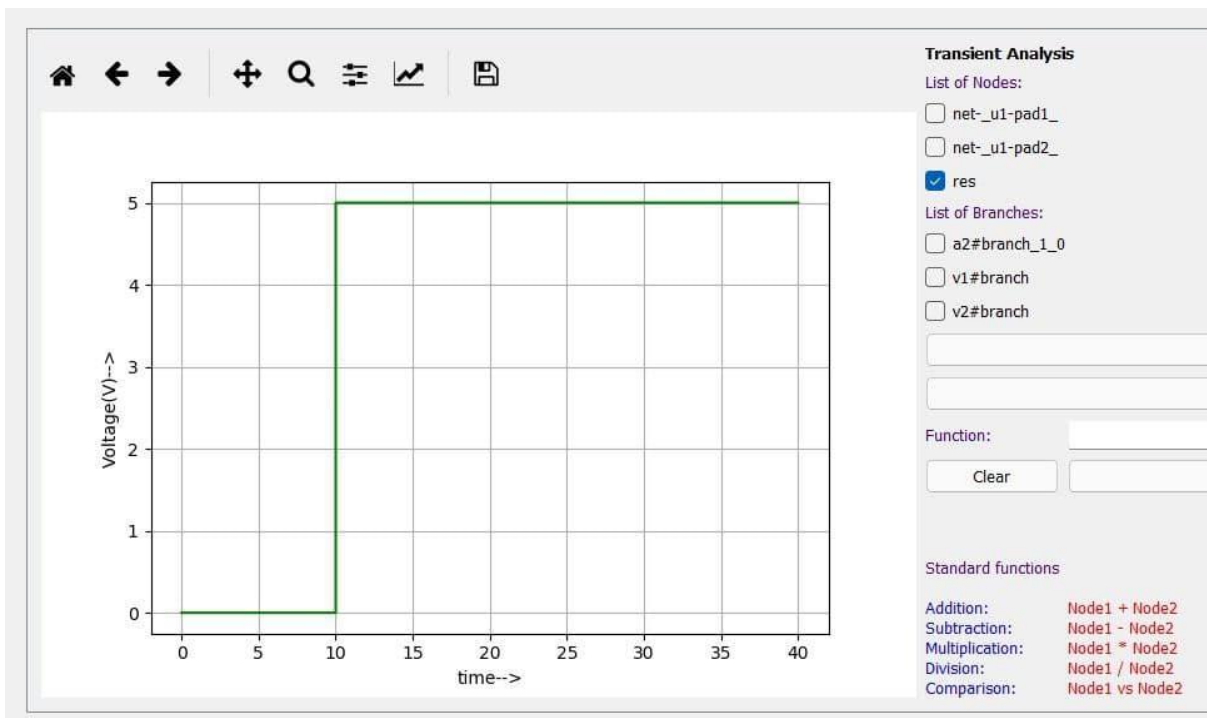


Figure 4: Result

REFERENCE:

<https://www.iitr.ac.in/departments/PH/uploads/Teaching%20Laboratory/Electronics/5.Intercorversion%20of%20Universal%20Gates%20and%20De%20Morgans%20Theorem.pdf>