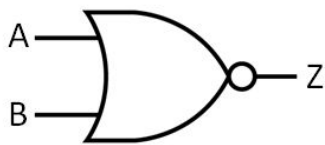


# EXPERIMENT-2b

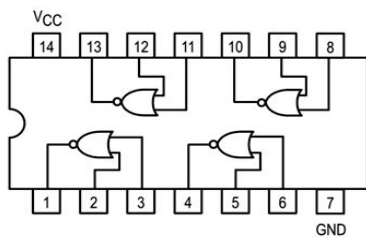
**AIM:** To realize all the gates using NOR gate

**HARDWARE / SOFTWARE APPARATUS :** Power supply , Bread Board , Connecting Wires, respective IC (7402)

**CIRCUIT:**



**PIN-DIAGRAM:**



**TRUTH TABLE:**

NOR Truth Table		
A	B	Q
0	0	1
0	1	0
1	0	0
1	1	0

**THEORY:** NOR gate is actually a combination of two logic gates: OR and NOT gate it's output is complement of OR gate

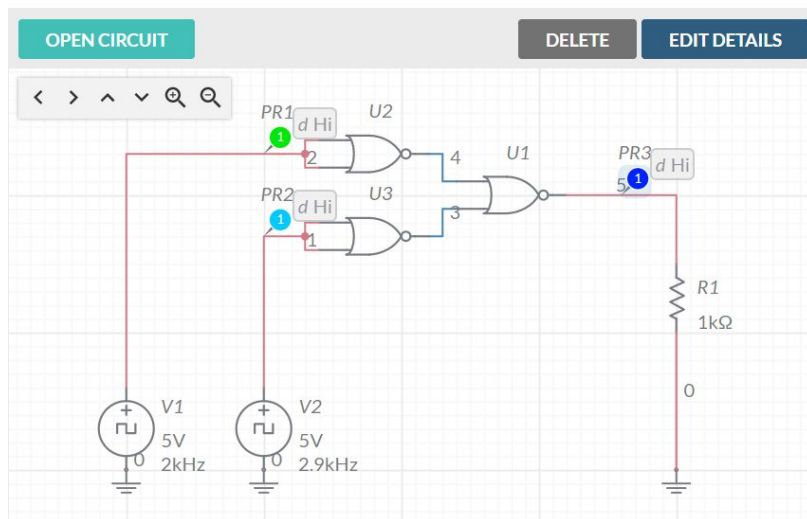
This gate can have a minimum of two inputs while the output is limited to one. Using this gate, we can realise all other gates. This is why this gate is also known as a universal gate.

## PROCEDURE (MULTISIM):

- Select the gate symbol from the digital section of the tool bar on the left .
- Select a resistor from the same toolbar.
- Select the voltage sources and ground symbols from that toolbar.
- Ground both the voltage sources(clock) and then connect them as in the circuit diagram so as to recreate a different gate.
- Connect the output terminal to 1kohm resistor and ground it.

## CIRCUIT DIAGRAMS:

### AND GATE



CREATOR



**therijulsharma**  
21 Circuits

DATE CREATED  
23 minutes ago

LAST MODIFIED  
23 minutes ago

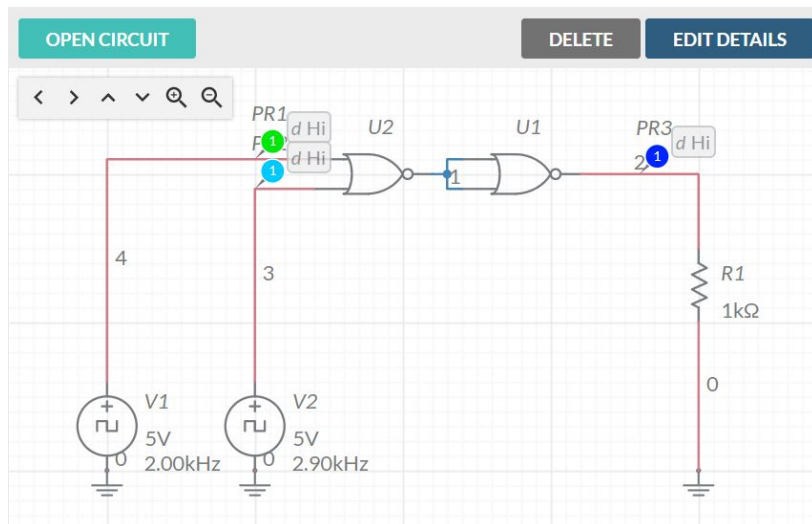
FOLDER  
STLD experiment 2b

TAGS

This circuit has no tags currently.

[EDIT TAGS](#)

### OR GATE



CREATOR



therijulsharma  
21 Circuits

DATE CREATED  
26 minutes ago

LAST MODIFIED  
25 minutes ago

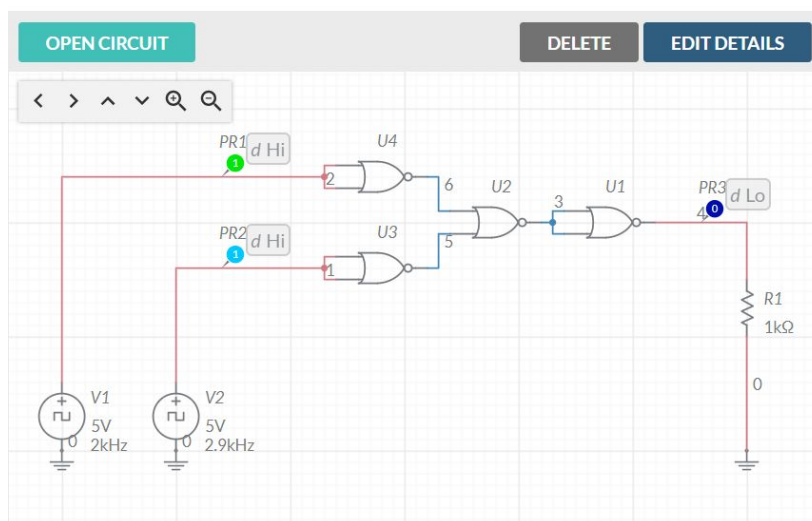
FOLDER  
STLD experiment 2b

TAGS

This circuit has no tags currently.

EDIT TAGS

## NAND GATE



CREATOR



therijulsharma  
21 Circuits

DATE CREATED  
10 minutes ago

LAST MODIFIED  
10 minutes ago

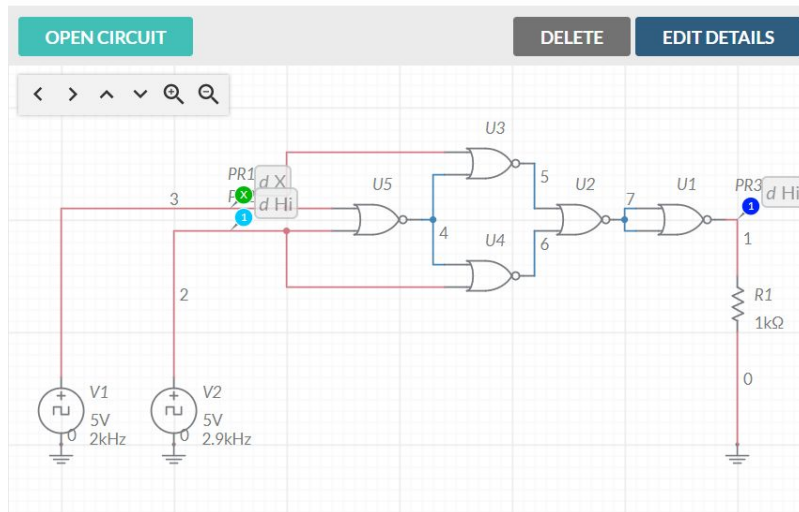
FOLDER  
STLD experiment 2b

TAGS

This circuit has no tags currently.

EDIT TAGS

## XOR GATE



CREATOR



**therijulsharma**  
21 Circuits

DATE CREATED

14 minutes ago

LAST MODIFIED

14 minutes ago

FOLDER

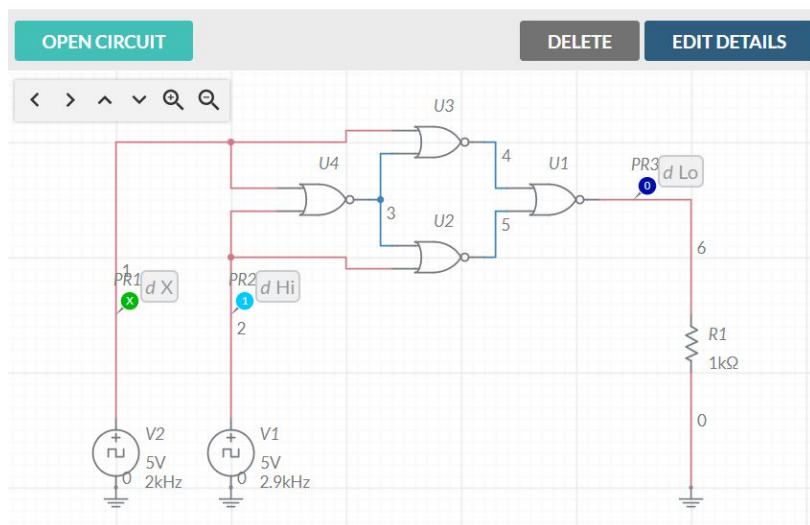
STLD experiment 2b

TAGS

This circuit has no tags currently.

[EDIT TAGS](#)

## XNOR GATE



CREATOR



**therijulsharma**  
21 Circuits

DATE CREATED

18 minutes ago

LAST MODIFIED

18 minutes ago

FOLDER

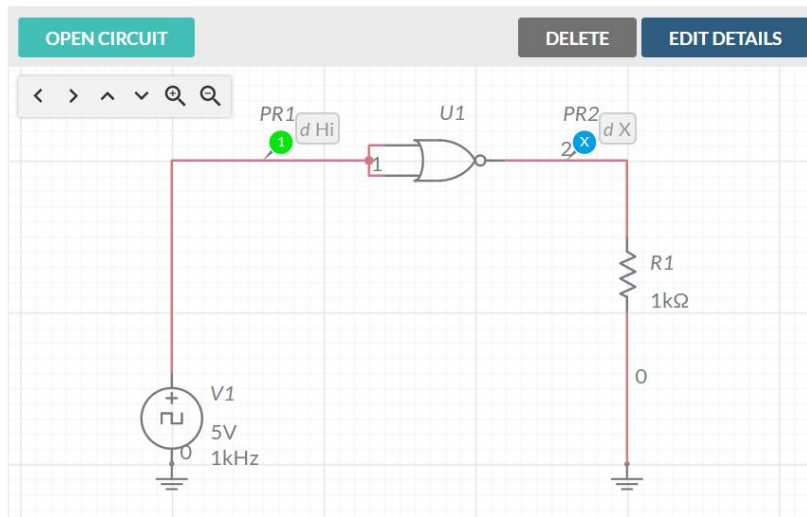
STLD experiment 2b

TAGS

This circuit has no tags currently.

[EDIT TAGS](#)

## NOT GATE



CREATOR



therijulsharma  
21 Circuits

DATE CREATED  
28 minutes ago

LAST MODIFIED  
28 minutes ago

FOLDER  
STLD experiment 2b

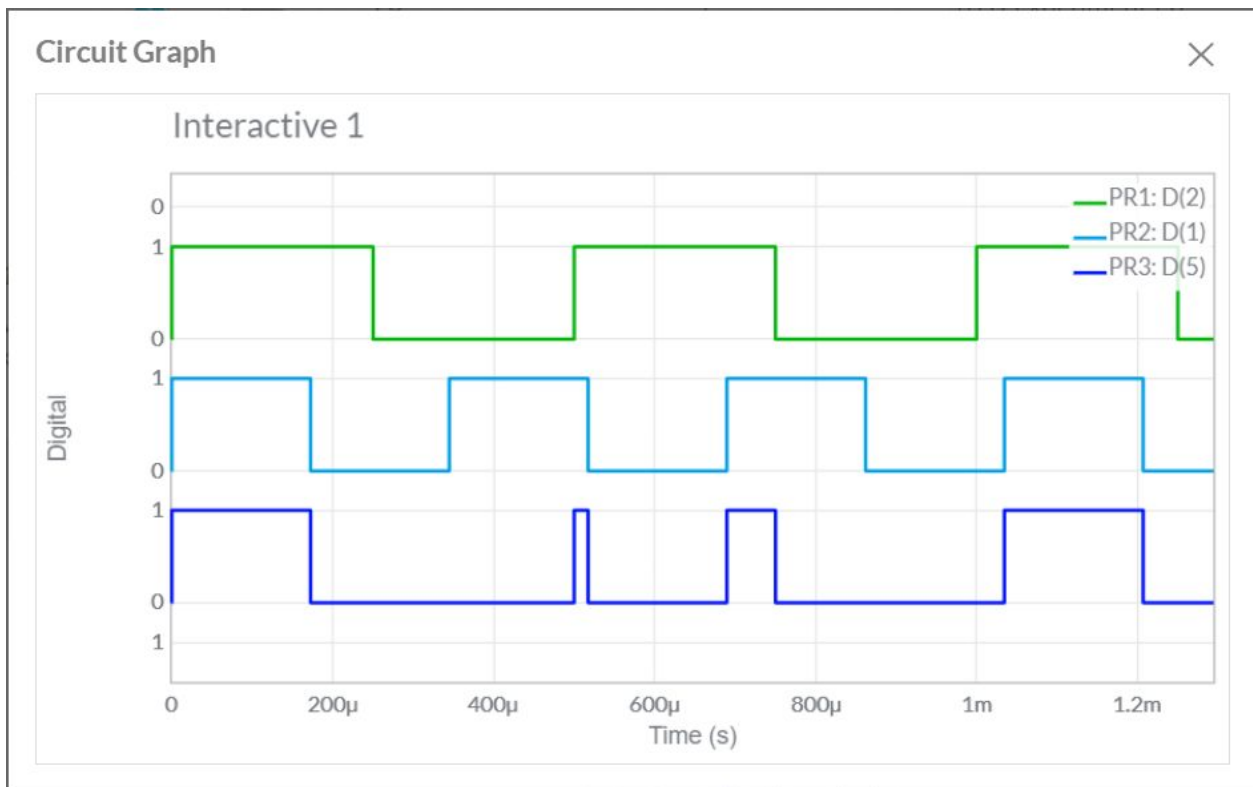
TAGS

This circuit has no tags currently.

EDIT TAGS

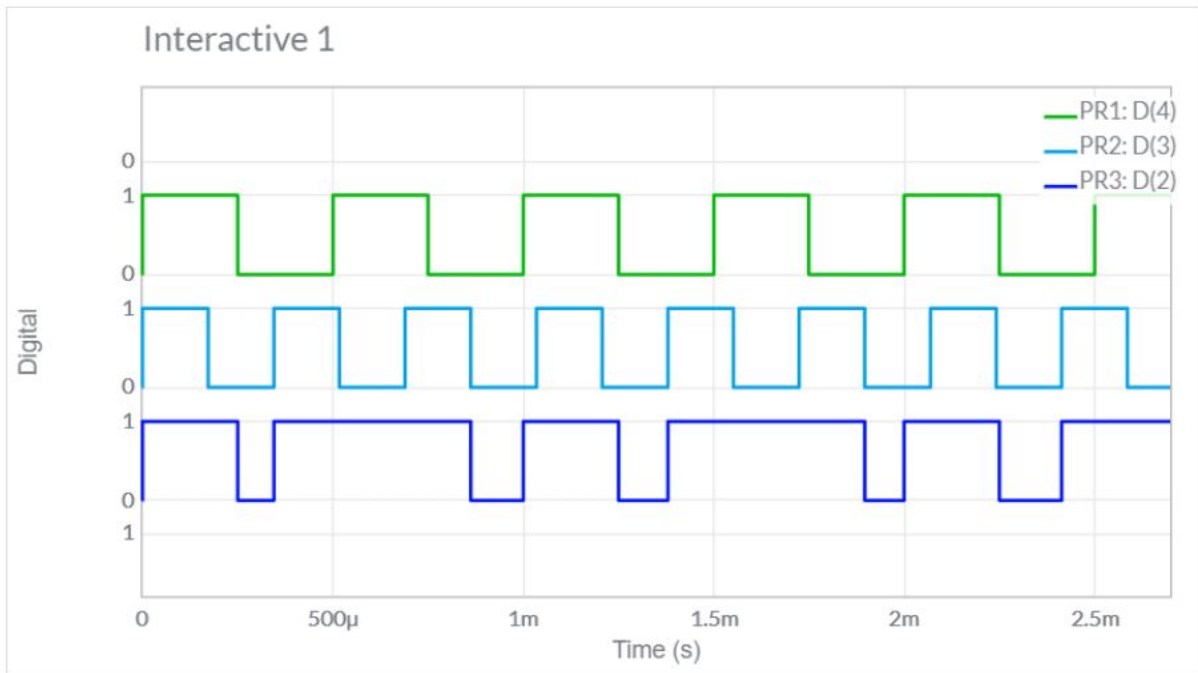
**INPUT /OUTPUT WAVEFORMS:**

**AND GATE**



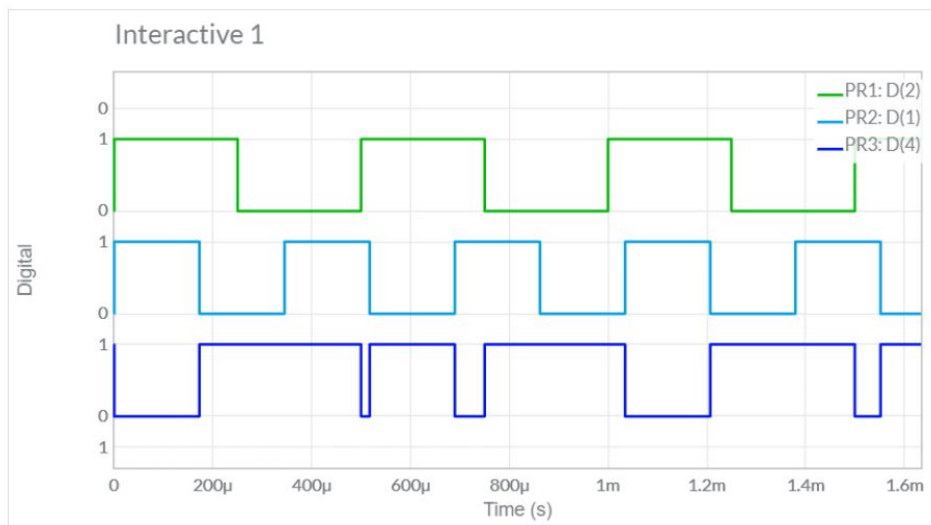
**OR GATE**

## Circuit Graph



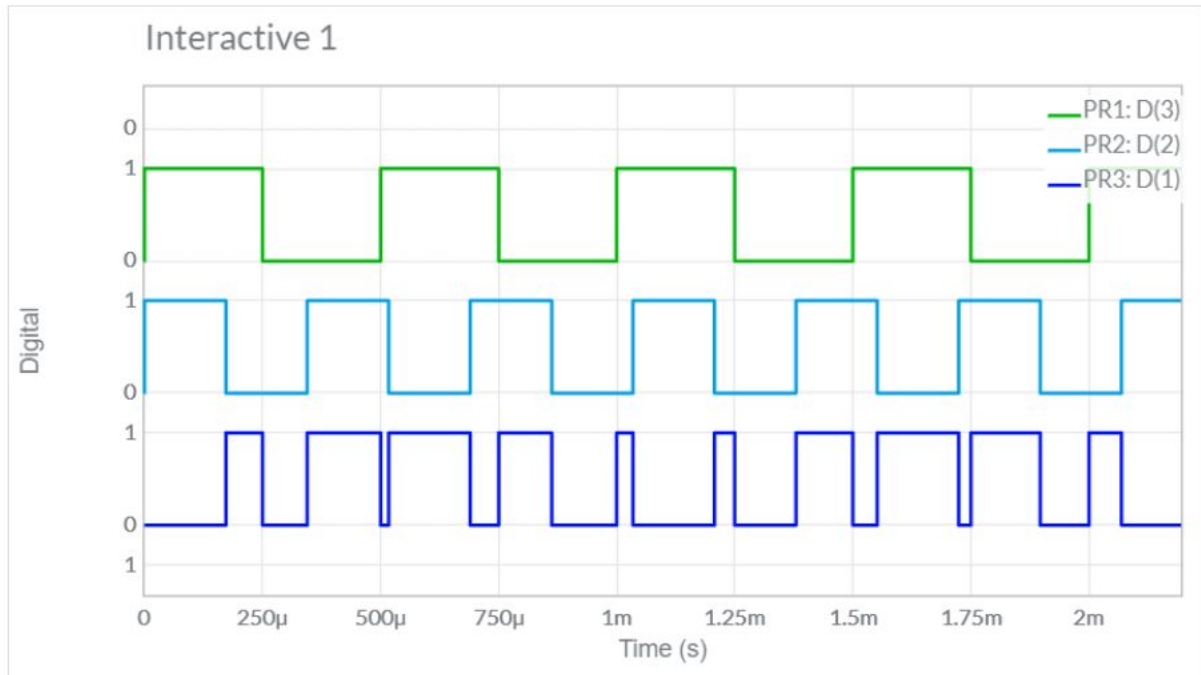
## NAND GATE

### Circuit Graph



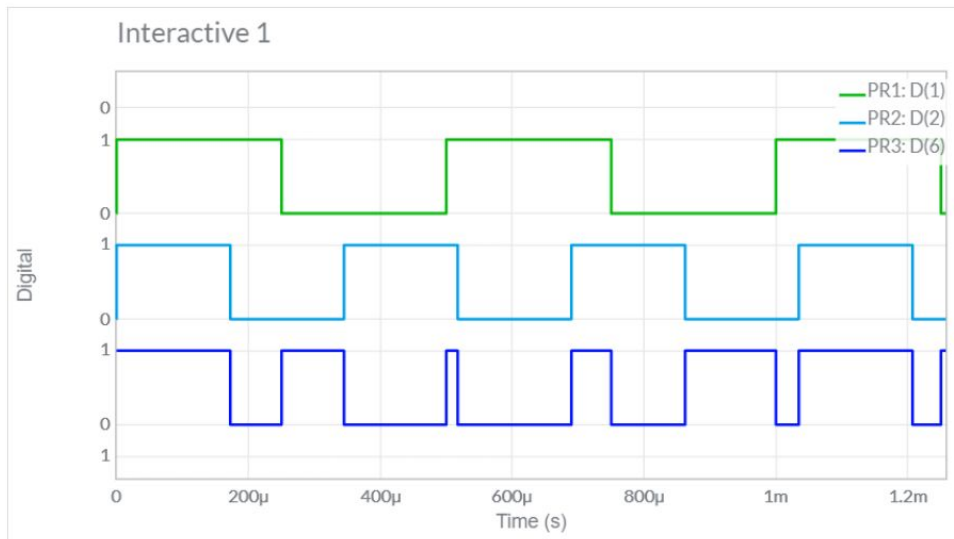
## XOR GATE

## Circuit Graph

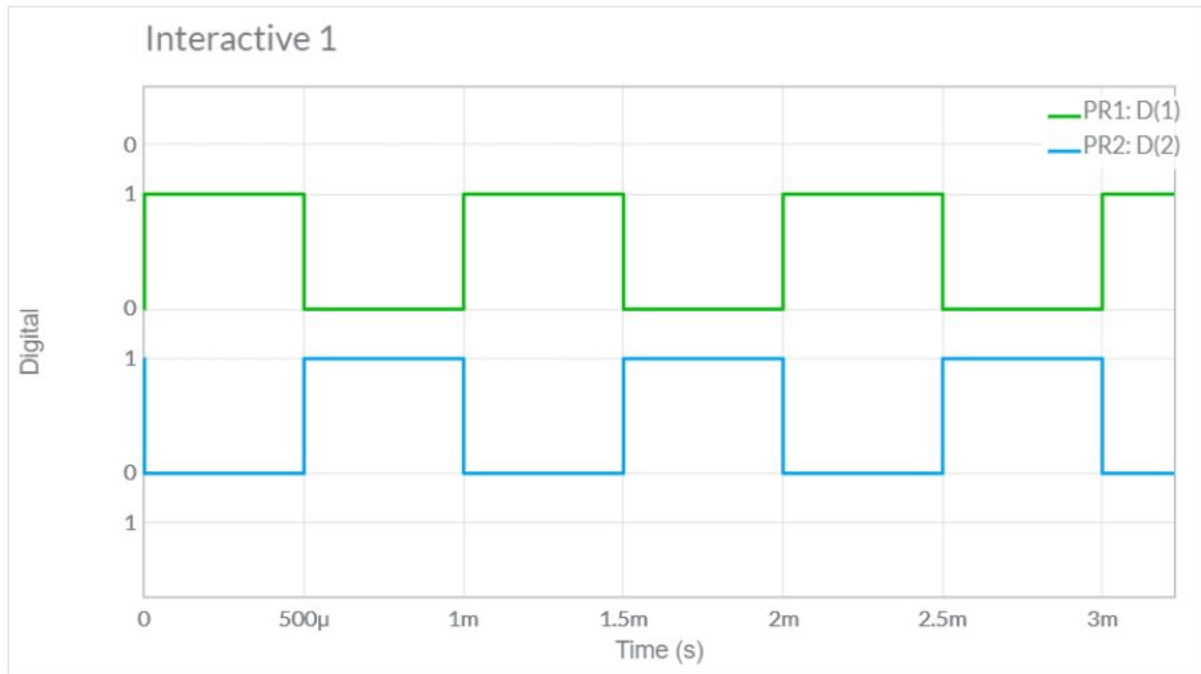


## XNOR GATE

### Circuit Graph



## NOT GATE

**PRECAUTIONS:**

- Power supply should not exceed 5V.
- All the connections should be tight.
- Components should be tested before the practical.