

Digital Design Learning of Logic Gates with Deeds

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RESEARCH OBJECTIVE

A logic gate is a device that acts as a building block for digital circuits. They perform basic logical functions that are fundamental to digital circuits. Most electronic devices we use today will have some form of logic gates in them. For example, logic gates can be used in technologies such as smartphones, tablets or within memory devices.

In a circuit, logic gates will make decisions based on a combination of digital signals coming from its inputs. Most logic gates have two inputs and one output. Logic gates are based on Boolean algebra. At any given moment, every terminal is in one of the two binary conditions, false or true. False represents 0, and true represents 1. Depending on the type of logic gate being used and the combination of inputs, the binary output will differ. A logic gate can be thought of like a light switch, wherein one position the output is off -- 0, and in another, it is on -- 1. Logic gates are commonly used in integrated circuits (IC).

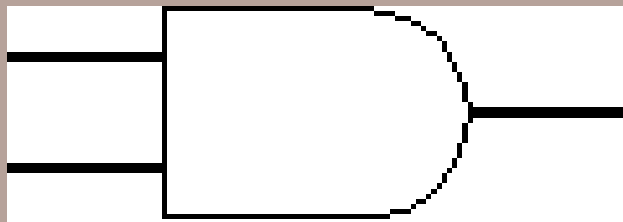
Basic logic gates

There are seven basic logic gates: AND, OR, XOR, NOT, NAND, NOR, and XNOR.

AND | OR | XOR | NOT | NAND | NOR | XNOR

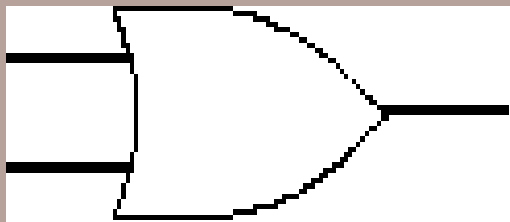
REFERENCES

- [1] Manual Pengguna, (2022). Aplikasi Pendidikan dan Reka Bentuk Elektronik Digital (S. Widyarto, Ed. & Trans.; 1st ed.). International Community Forum (ICF).
[2] <https://www.digitalelectronicsdeeds.com/>



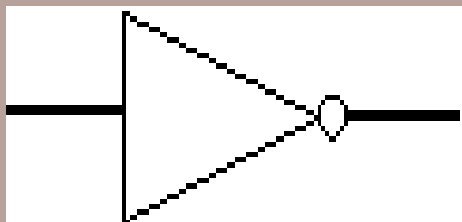
AND gate

Input 1	Input 2	Output
	1	
1		
1	1	1



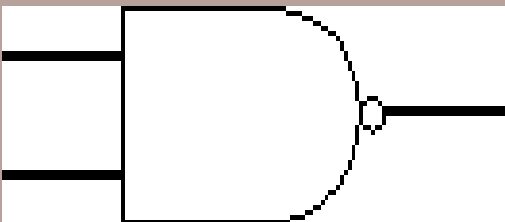
OR gate

Input 1	Input 2	Output
	1	1
1		1
1	1	1



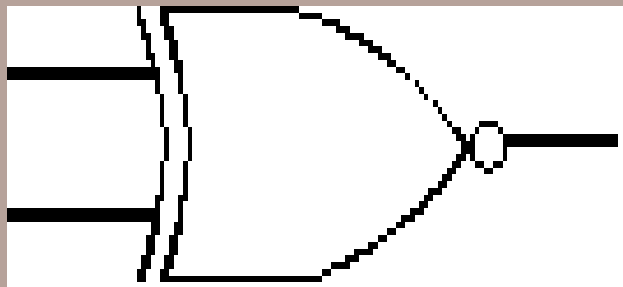
NOT gate

Input	Output
1	
	1



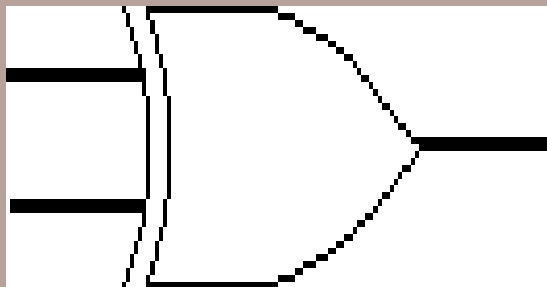
NOR gate

Input 1	Input 2	Output
		1
	1	
1		
1	1	



XNOR gate

Input 1	Input 2	Output
		1
	1	
1		
1	1	1



XOR gate

Input 1	Input 2	Output
	1	1
1		1
1	1	



INTERNATIONAL COMMUNITY FORUM (ICF)

