ELC 2137 Lab 02: Transistor Logic Gates

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Summary

Gates are made up of switches (on/off). How you connect them determines the type of gate; Transistors are voltage-controlled switches, so we can hook gates together.

Q&A

1. What logic operation does it implement?
   it's AND gate

Results

Table 1 is the truth table for the final gate I did in the lab. I keeped my NOR gate, and built two more inverters, then I connected one to each input (between the switch and the transistor of the NOR gate). The truth table shows that the final gate is an AND gate.

Table 1: Logic/truth table for the Final gate

A	B	LED
0	0	0
0	1	0
1	0	0
1	1	1

Figure 1 and 2 are the circuit demonstration page I completed, they include the instuctor initials and the current paths for inverter, NOR gate, and final gate.

Code

There is no code require in this lab.

Circuit Demonstration Page

Student names: Yitian Wang

Instructor Initials

Pushbutton "Or Gate" RES

Transistor Not gate RES

Transistor Nor gate RES

Transistor unknown gate BSS

Diagrams

On each of the circuits below, draw the current paths and note whether each switch, transistor, and LED is ON or OFF.

Inverter:

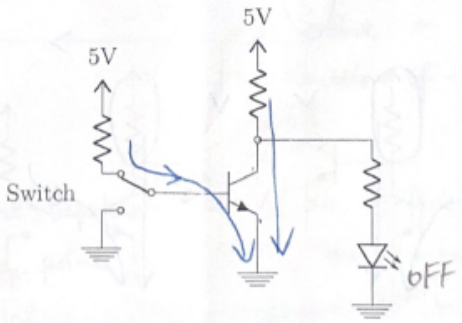
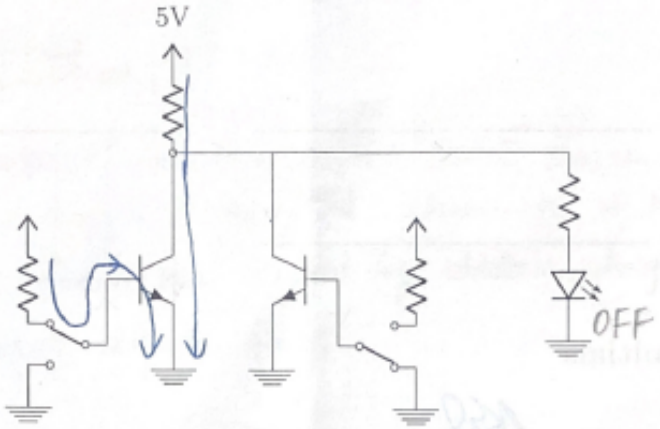


Figure 1: This is the Circuit Demonstration Page 1.

NOR:



Final gate:

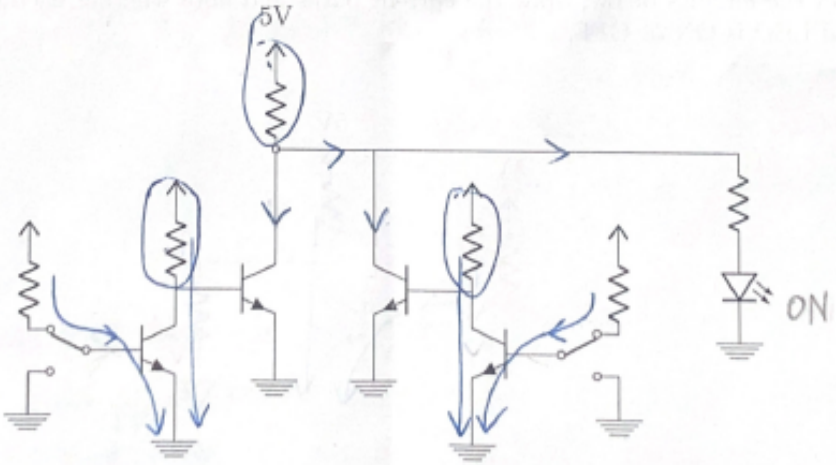


Figure 2: This is the Circuit Demonstration Page 2.