AND, OR, XOR using Arduino

CSC 180 Fundamentals of Computing

Department of Computer Science

Eastern Connecticut State University

**Goals**

The goal of this lab is to gain better comprehension of AND, OR, and XOR gates. In this experiment we will build a small virtual circuit that will have two inputs and one output. The output, which is LED will then identify whether the gate is on(1) or off(0). We will do this for each of the three gates.

**Task 1**

Open up the webpage at <https://www.jamesconlin.net/arduino/lab1/> .

There are five Arduino Project Examples. In order to continually press a button, you must SHIFT and Click for a button to be held down. This will allow you to determine which kind of Gate this is. Click regularly to un hold the button down. To start the system click start simulation

**Code Example 1**

[Example 1](https://www.tinkercad.com/things/3qKpMfeVDXY)

Fill out the truth table by interacting with the buttons on the Arduino setup. (4 points)

|  |  |  |
| --- | --- | --- |
| Button 1 | Button 2 | Output |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

What type of Gate is being used? (3 points)

How do you know this to be the case? (3 points)

**Code Example 2**

[Example 2](https://www.tinkercad.com/things/gni25P9gNYN)

Fill out the truth table by interacting with the buttons on the Arduino setup. (4 points)

|  |  |  |
| --- | --- | --- |
| Button 1 | Button 2 | Output |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

What type of Gate is being used? (3 points)

How do you know this to be the case? (3 points)

**Code Example 3**

[Example 3](https://www.tinkercad.com/things/8Zp1l9AlX38)

Fill out the truth table by interacting with the buttons on the Arduino setup. (4 points)

|  |  |  |
| --- | --- | --- |
| Button 1 | Button 2 | Output |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

What type of Gate is being used? (3 points)

How do you know this to be the case? (3 points)

**Code Example 4**

[Example 4](https://www.tinkercad.com/things/3cDK87zaZBZ)

Fill out the truth table by interacting with the buttons on the Arduino setup. (4 points)

|  |  |  |
| --- | --- | --- |
| Button 1 | Button 2 | Output |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

What type of Gate is being used? (3 points)

How do you know this to be the case? (3 points)

**Code Example 5**

[Example 5](https://www.tinkercad.com/things/eWP4rR2aZbD)

Fill out the truth table by interacting with the buttons on the Arduino setup. (4 points)

|  |  |  |
| --- | --- | --- |
| Button 1 | Button 2 | Output |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

What type of Gate is being used? (3 points)

How do you know this to be the case? (3 points)