A

Practical activity Report submitted

for Engineering Design Project-II (UTA-014)

by

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Submitted to

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Assignment-3B (CSED)

Write an arduino program to perform the XOR and X-NOR logic gates with 3 inputs using truth table entries and all input values must be provided through serial monitor.

CODE:

```
int a;
int b;
int c;
int d;
void setup()
{
 Serial.begin(9600);
}
int Xor(int a,int b, int c){
  if( (a==0 && b==0 && c==0) || (a==1 && b==1 && c==0) || (a==1 && b==0 && c==1) || (a==0
&& b==1 && c==1)){
    d=0;
 }
 else{
   d=1;
  }
  Serial.print("Ex-OR Gate ");
  Serial.println(d);
}
int Xnor(int a,int b, int c){
 if( (a==0 && b==0 && c==0) || (a==1 && b==1 && c==0) || (a==1 && b==0 && c==1) || (a==0
&& b==1 && c==1)){
   d=1;
 }
 else{
   d=0;
 }
 Serial.print("Ex-NOR Gate ");
 Serial.println(d);
}
void loop()
{
  Serial.print("Give the value of A ");
  while(Serial.available()==0){
  }
  a = Serial.parseInt();
  Serial.println(a);
  Serial.print("Give the value of B ");
  while(Serial.available()==0){
```

```
  }
  b = Serial.parseInt();
  Serial.println(b);
  Serial.print("Give the value of C ");
  while(Serial.available()==0){
  }
  c = Serial.parseInt();
  Serial.println(c);
  if ( a>1 || a<0 || b<0 || b>1 || c>1 || c<0){
    Serial.println("pls give a valid input");
    Serial.println("Input must be 0/1.");
  }
  Xor (a, b, c);
  Xnor (a, b, c);
  delay (1000);
}
```

TINKERCAD SCREENSHOTS:

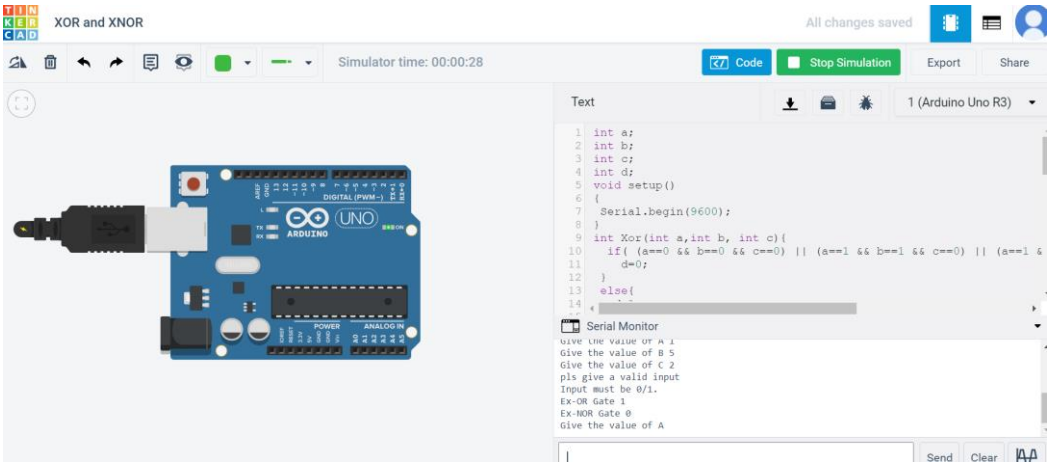


Fig3B.1 Tinkercad screenshot when the stimulation was started

Fig3B.2

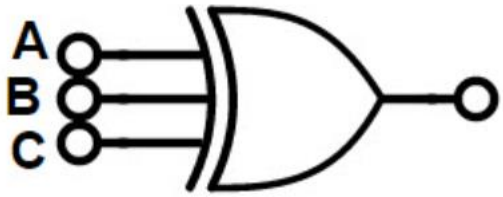
Serial Monitor

```
Give the value of A 1
Give the value of B 1
Give the value of C 1
Ex-OR Gate 1
Ex-NOR Gate 0
Give the value of A 0
Give the value of B 1
Give the value of C 0
Ex-OR Gate 1
Ex-NOR Gate 0
Give the value of A 1
Give the value of B 5
Give the value of C 2
pls give a valid input
Input must be 0/1.
```

Fig3B.3 Few outputs when the input was given via serial monitor

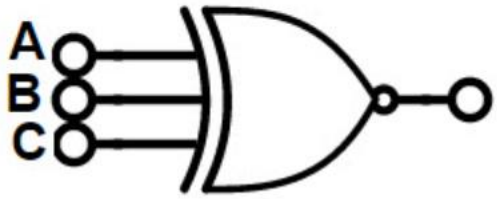
TRUTH TABLES:

For XOR Gate:



INPUT			OUTPUT
A	B	C	D
0	0	0	0
0	0	1	1
0	1	0	1
0	1	1	0
1	0	0	1
1	0	1	0
1	1	0	0
1	1	1	1

For X-NOR Gate:



INPUT			**OUTPUT**
A	B	C	D
0	0	0	1
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	1
1	1	1	0