Levi Kaplan EECE2160

Embedded Design: Enabling Robotics Prelab Assignment 4

Prelab Assignment 4 Introduction to Hardware

Levi Kaplan kaplan.l@northeastern.edu

Submit Date: 10/15/20 Due Date: 10/15/20

Levi Kaplan	Embedded Design: Enabling Robotics
EECE2160	Prelab Assignment 4

Digit Table

	INP	UTS		Character			OU	JTPU	ΓS		
D3	D2	D1	D0	#	a	b	c	d	e	f	g
0	0	0	0	0	1	1	1	1	1	1	0
0	0	0	1	1	0	1	1	0	0	0	0
0	0	1	0	2	1	1	0	1	1	0	1
0	0	1	1	3	1	1	1	1	0	0	1
0	1	0	0	4	0	1	1	0	0	1	1
0	1	0	1	5	1	0	1	1	0	1	1
0	1	1	0	6	1	0	1	1	1	1	1
0	1	1	1	7	1	1	1	0	0	0	0
1	0	0	0	8	1	1	1	1	1	1	1
1	0	0	1	9	1	1	1	0	0	1	1
1	0	1	0	A	1	1	1	0	1	1	1
1	0	1	1	b	0	0	1	1	1	1	1
1	1	0	0	С	1	0	0	1	1	1	0
1	1	0	1	d	0	1	1	1	1	0	1
1	1	1	0	Е	1	0	0	1	1	1	1
1	1	1	1	F	1	0	0	0	1	1	1

Boolean equation

Prelab 4 A = DO DI DZ D3 0 Do 01 02 03 2 3 DO DI 02 03 5 DO DI 02 D3 6 DO DI 02 D3 7 DO DI 02 03 T 8 DO 01 02 03 + DO DI D2 D3 + DO 01 02 03 + C DO DI 02 03 + E DO DI 02 03 + F DO DI DZ D3 b=00 DI 02 D3 + 0 Do 01 02 03 + 00 01 02 03 DO DI 02 03 4 DO DI 02 D3 + 7 DO DI 02 D3 T 8 DO 01 02 03 + DO DI D2 D3 + 9 DO 01 02 03 t A DO DI 02 03 d

C-DO DI 02 03 +	6
	١
DO 01 02 03 +	3
DO DI 02 D3 +	4
DO DI 02 D3 +	5
DO 01 02 D3 +	6
DO DI 02 D3 +	7
DO DI DZ D3 +	8
DO DI D2 D3 +	9
DO DI DZ D3 +	À
DO DI 02 03 +	6
DO 01 02 03	d
y- V(V2 V3	٩
	^
d= 00 01 02 03 +	0
DO 01 02 03 +	2
DO DI DZ D3 +	2 3
DO DI DZ D3 + DO DI DZ D3 + DO DI DZ D3 +	2 3 5
Do 01 02 03 + Do 01 02 03 + Do 01 02 03 + Do 01 02 03 +	2 3 5 6
DO DI DZ D3 + DO DI DZ D3 + DO DI DZ D3 +	2 3 5
Do 01 02 03 + Do 01 02 03 + Do 01 02 03 + Do 01 02 03 +	2 3 5 6
Do 01 02 03 +	23568
00 01 02 03 + 00 01 02 03 + 00 01 02 03 + 00 01 02 03 + 00 01 02 03 + 00 01 02 03 +	2 3 5 6 8 A
Do 01 02 03 +	2356845
Do 01 02 03 + 1 00 01 02 02 03 + 1 00 01 02 02 02 02 02 02 02 02 02 02 02 02 02	23568466

e= Do 01 02 03 +	0268A6CdEF *
f= \overline{Do} \overline{Di}	8 7 5 6 8 9 A 5 C E F
9=00 01 02 02 T	2

Levi Kaplan
EECE2160

Embedded Design: Enabling Robotics Prelab Assignment 4

	y -	VI	VLVJ		
J	Do	DI	02 03	+	3
			02 03		4
	yo	VI	VL V5		7
	00	DI	02 03	+	5
	00	DI	02 03	+	6
	Do	DI	02 03	+	8
	Do	DI	D2 D3	+	٩
	00	DI	02 03	+	A
	00	DI	02 03	+	6
	00	DI	02 03	+	d
	Do	DI	02 03	+	E
	00	DI	02 03		F

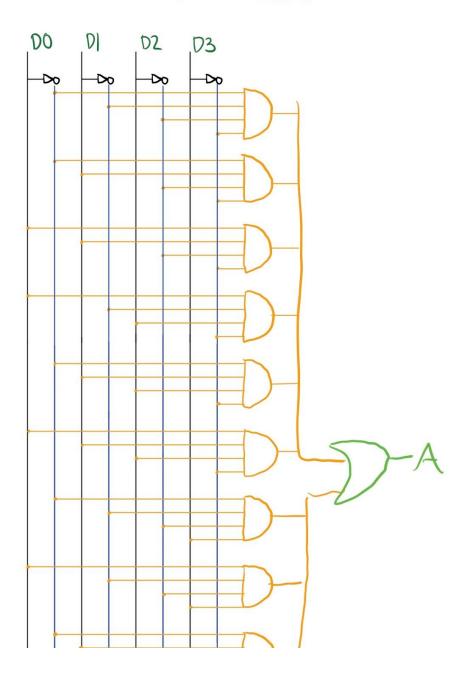
```
Ø:
     DO DI 02 D3
1:
     DO 01 02 03
2:
     DO DI DZ D3
     DO DI 02 03
3:
y ;
     DO DI 02 D3
     DO DI 02 D3
5:
6:
     DO 01 02 D3
      DO DI 02 03
7:
      DO 01 02 03
8:
9:
      DO DI DZ D3
A:
      DO DI 02 D3
      DO DI 02 D3
'v :
C:
      DO DI 02 D3
      DO DI 02 03
d :
E:
      Do 01 02 03
      DO DI DZ D3
```

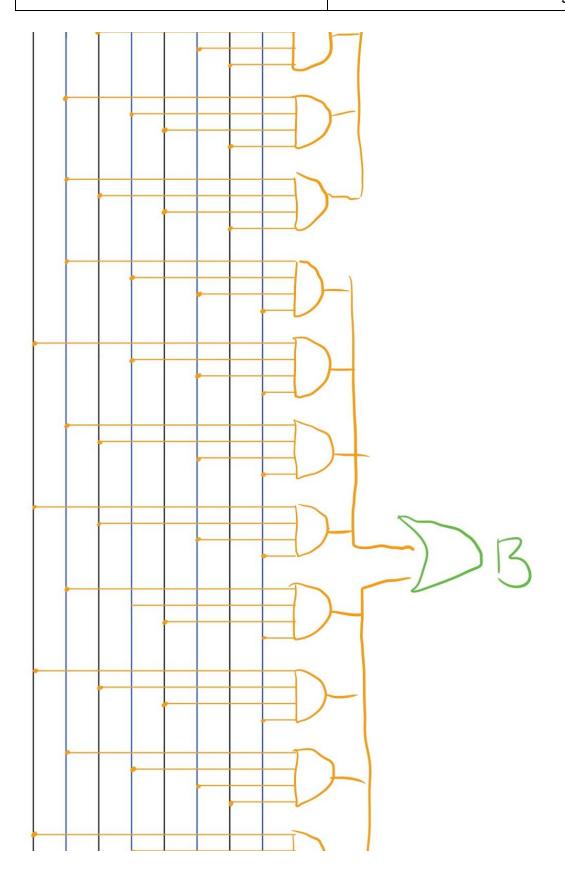
Levi Kaplan
EECE2160

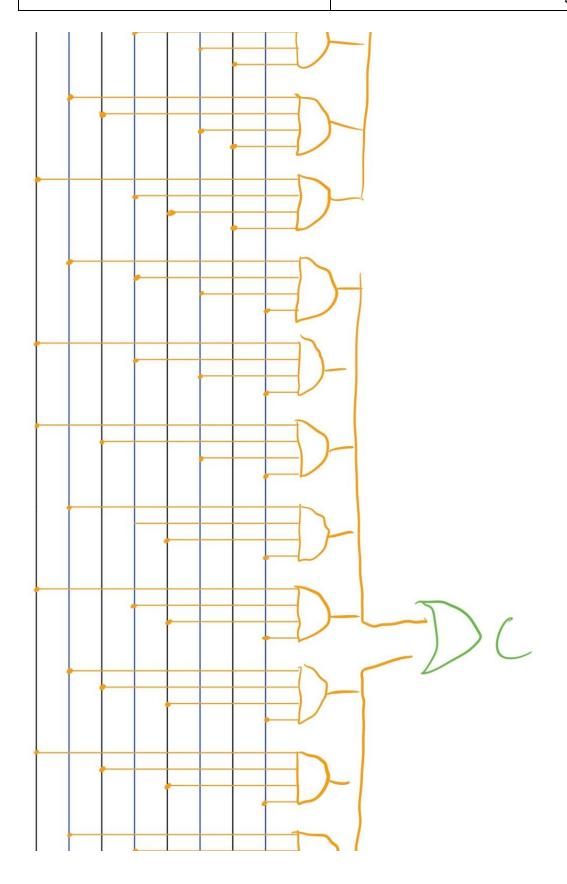
Embedded Design: Enabling Robotics Prelab Assignment 4

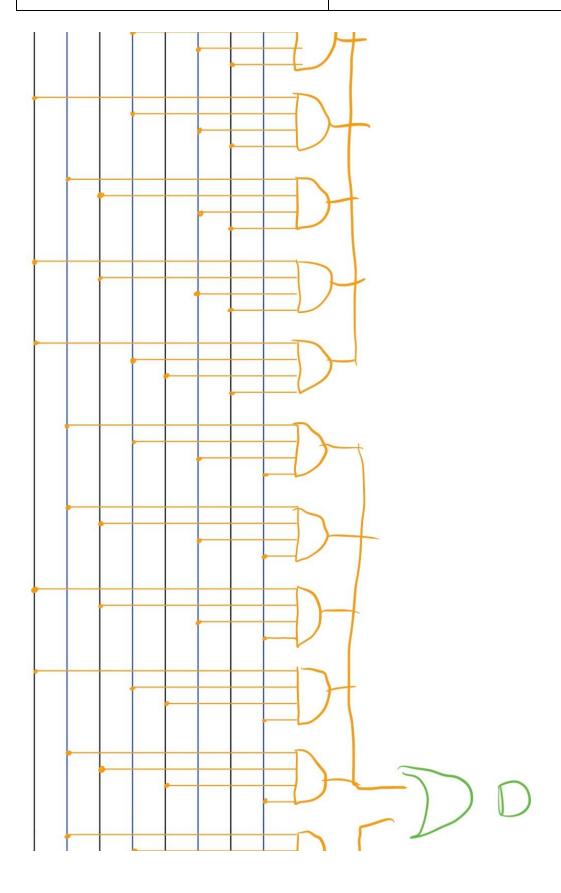
Full Schematic

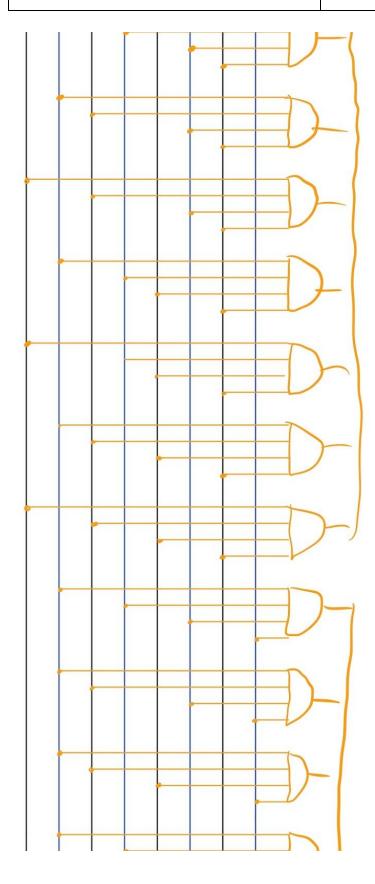


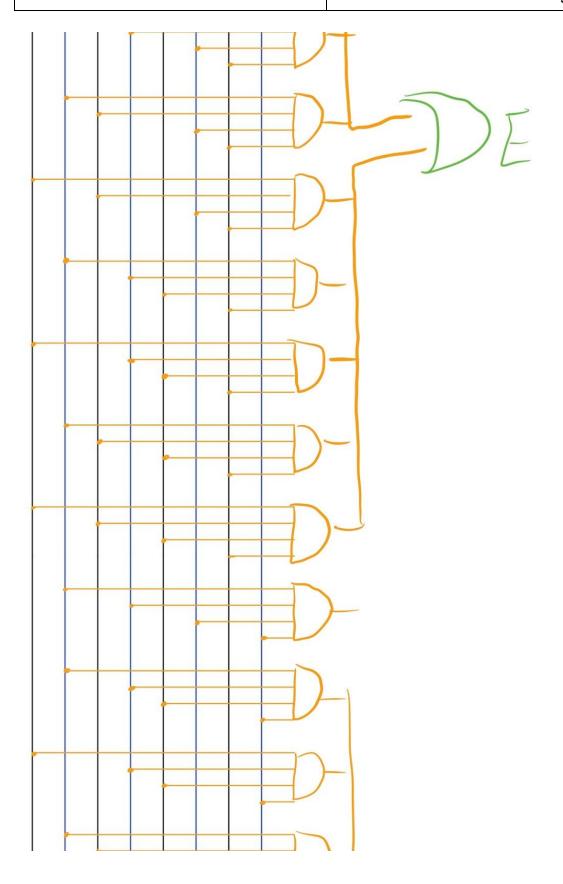


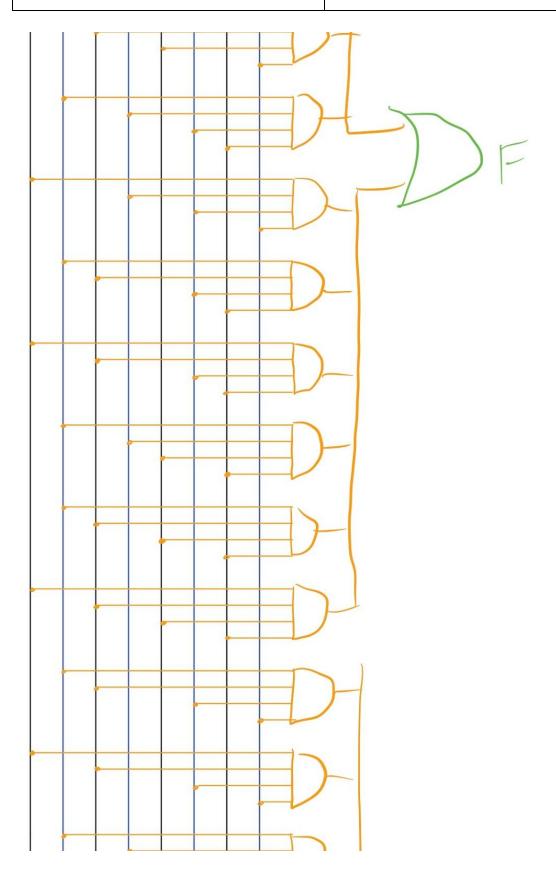


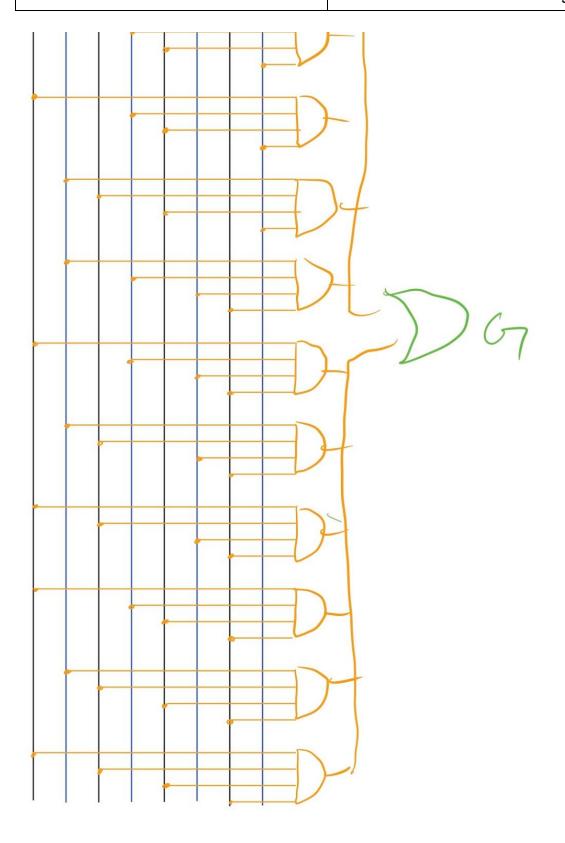






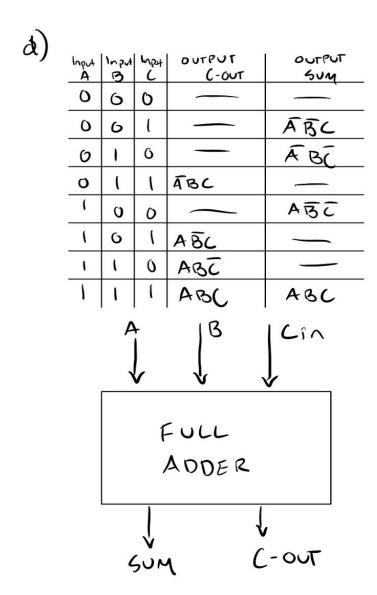






Levi Kaplan	Embedded Design: Enabling Robotics
EECE2160	Prelab Assignment 4

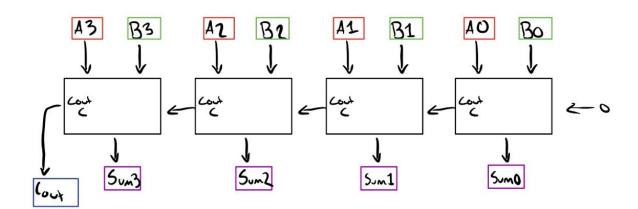
Truth table for full adder, schematic



Levi Kaplan
EECE2160

Embedded Design: Enabling Robotics Prelab Assignment 4





Levi Kaplan	Embedded Design: Enabling Robotics
EECE2160	Prelab Assignment 4

Levi Kaplan	Embedded Design: Enabling Robotics
EECE2160	Prelab Assignment 4

Levi Kaplan	Embedded Design: Enabling Robotics
EECE2160	Prelab Assignment 4