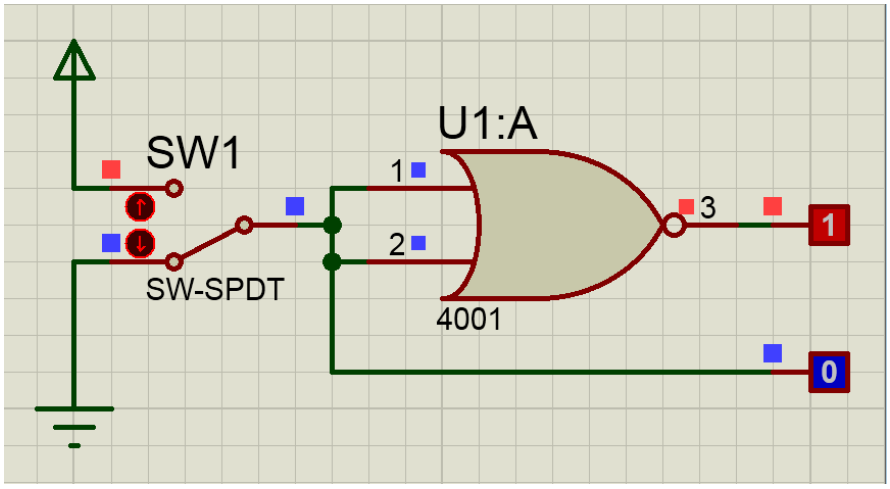
Nama : RAIHAN MAZARUL HIDAYAT

NIM : L200180162

Percobaan 1: Substitusi Pengganti Gerbang Logika

Gambar Rangkaian



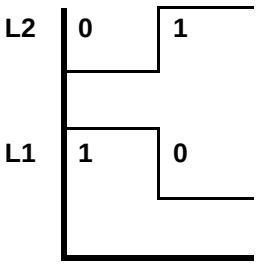
Gambar 1. Variasi Gerbang 1

Fungsi Boolean: L1 = ¬(L2+L2) = ¬ L2

Tabel Kebenaran

SW 1	L2	L1
0	0	1
1	1	0

Diagram Waktu

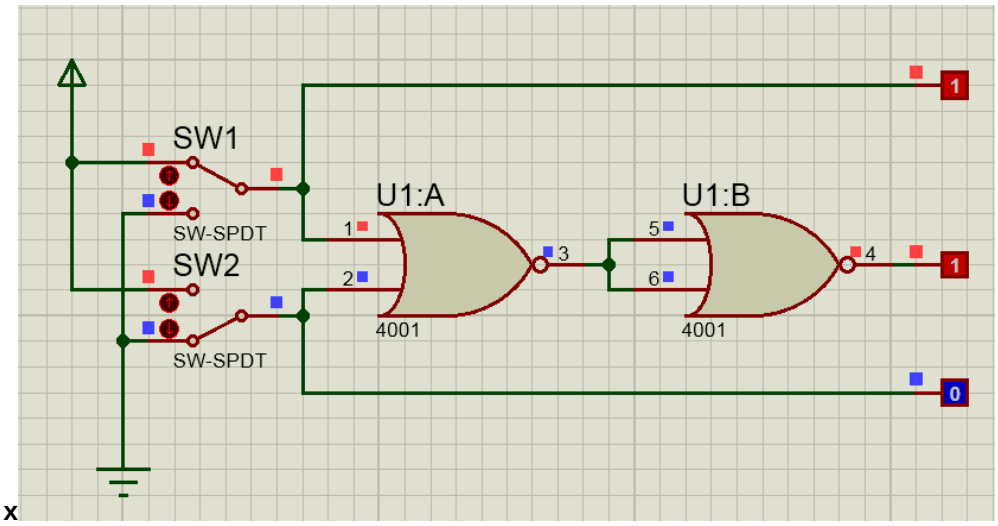


Kesimpulan:

Gerbang NOR pada Gambar 1 membentuk logika dari gerbang NOT.

Percobaan 2: Substitusi Pengganti Gerbang Logika

Gambar Rangkaian



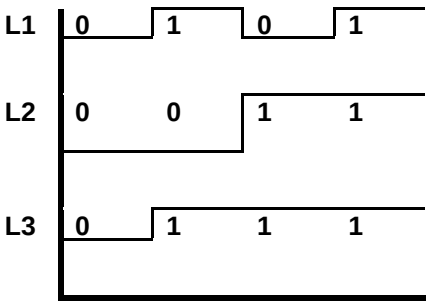
Gambar 2. Variasi Gerbang 2

Fungsi Boolean: ***L3 = ¬(¬(L1+L2)) = L1+L2***

Tabel Kebenaran

SW 1	SW 2	L1	L2	L3
0	**0**	**0**	**0**	**0**
1	**0**	**1**	**0**	**1**
0	**1**	**0**	**1**	**1**
1	**1**	**1**	**1**	**1**

Diagram Waktu

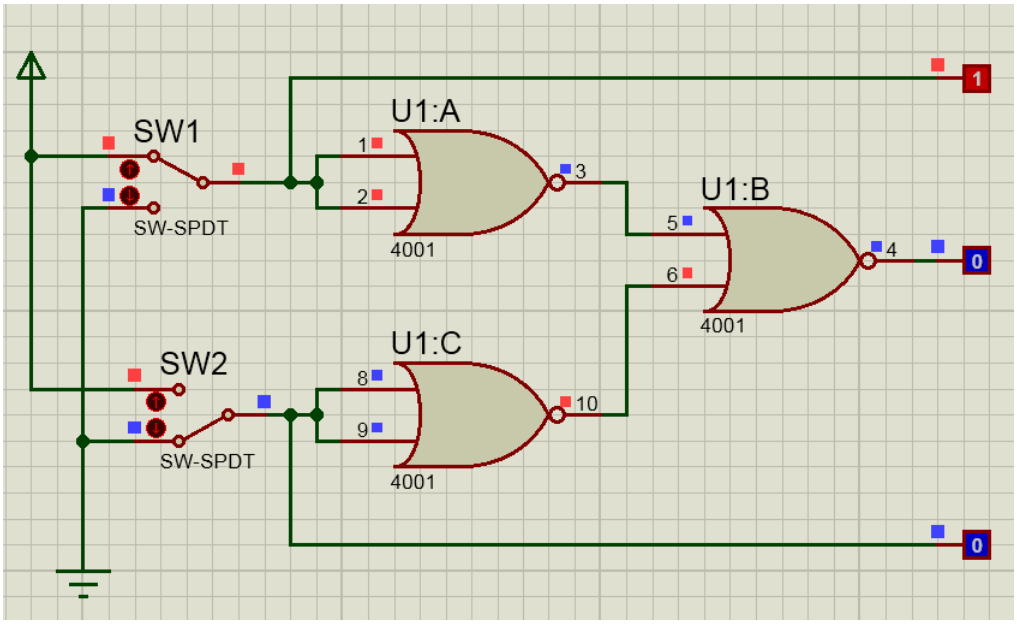


Kesimpulan:

Gerbang NOR pada Gambar 2 membentuk logika dari gerbang OR.

Percobaan 3: Substitusi Pengganti Gerbang Logika

Gambar Rangkaian



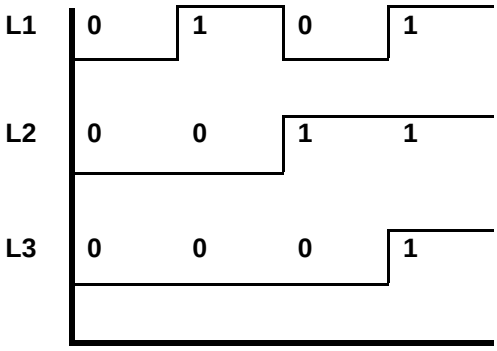
Gambar 3. Variasi Gerbang 3

Fungsi Boolean: L3 = ¬(¬L1 + ¬L2) = L1.L2

Tabel Kebenaran

SW 1	SW 2	L1	L2	L3
0	0	0	0	0
1	0	1	0	0
0	1	0	1	0
1	1	1	1	1

Diagram Waktu

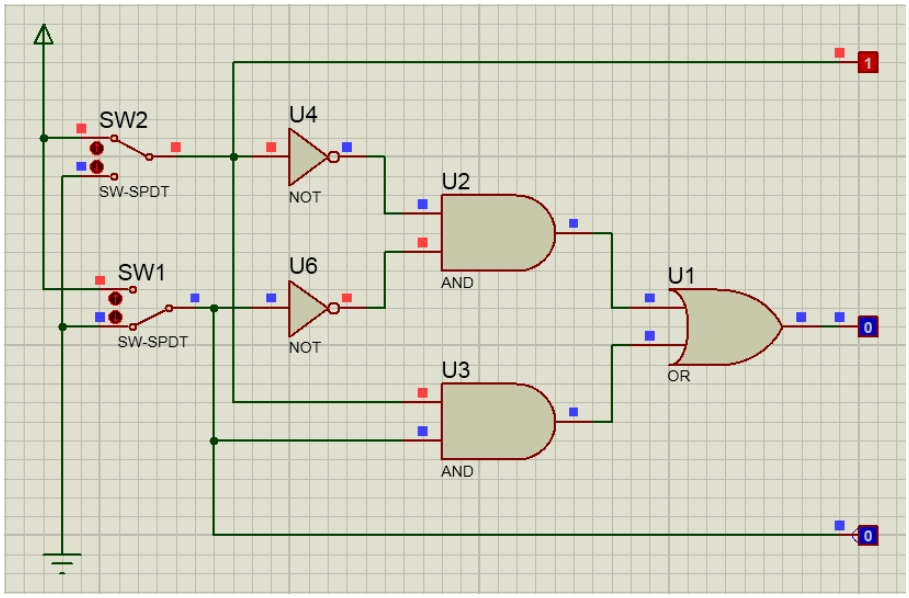


Kesimpulan:

Gerbang NOR Gambar 3 logika dari AND.

Percobaan 4: Substitusi Pengganti Gerbang Logika

Gambar Rangkaian



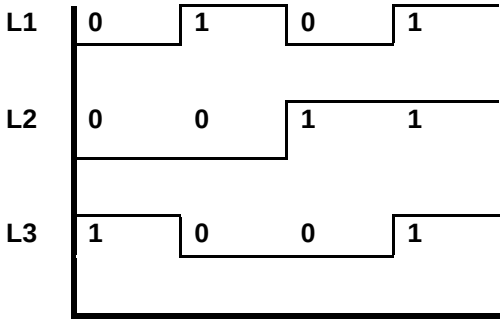
Gambar 4. Variasi Gerbang 4

Fungsi Boolean: L3 = ¬(L1.L2) + L1.L2=¬(L1⊕L2)

Tabel Kebenaran

SW 1	SW 2	L1	L2	L3
0	0	0	0	1
1	0	1	0	0
0	1	0	1	0
1	1	1	1	1

Diagram Waktu



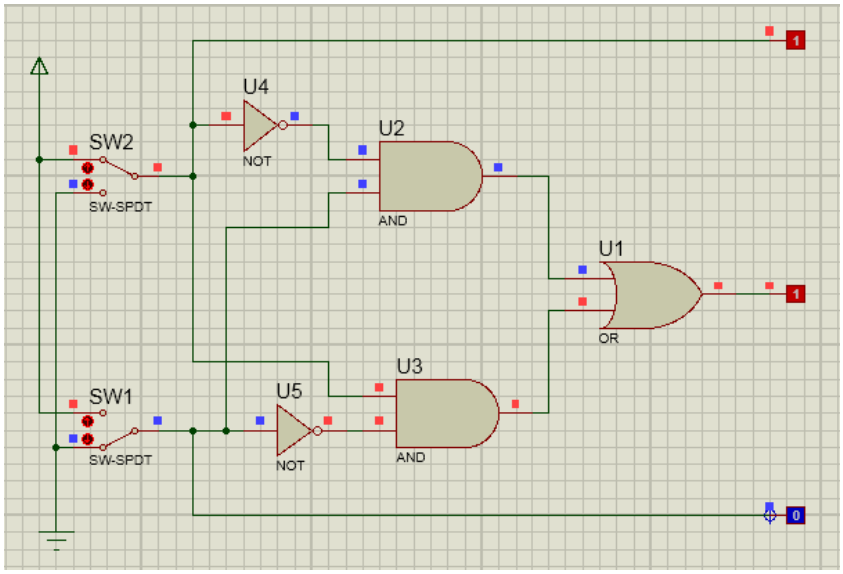
Kesimpulan:

Gerbang NOR pada Gambar 4 membentuk logika dari gerbang XNOR.

Percobaan 5: Merancang Fungsi Boolean ke Dalam Rangkaian

Buat kombinasi gerbang logika berdasar fungsi Boolean L3 = ¬L1.L2 + L1.¬L2 = L1⊕L2

Gambar kombinasi gerbang logika

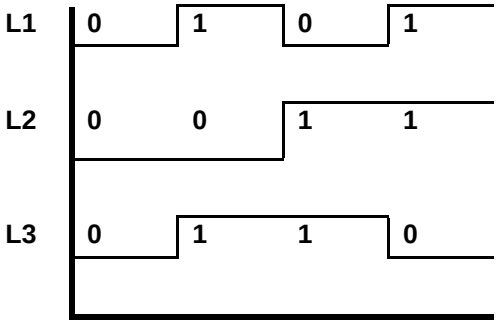


Gambar 5. Gambar rangkaian Fungsi L3 = ¬L1.L2 + L1.¬L2

Tabel Kebenaran

SW 1	SW 2	L1	L2	L3
0	0	0	0	0
1	0	1	0	1
0	1	0	1	1
1	1	1	1	0

Diagram Waktu



Kesimpulan:

Kombinasi gerbang pada Gambar 5 akan membentuk logika dari gerbang XOR.