INFORMATION TECHNOLOGY

UNIVERSITY OF MUHAMMADIYAH SURAKARTA

DIGITAL SYSTEMS

4th PRACTICE

By:

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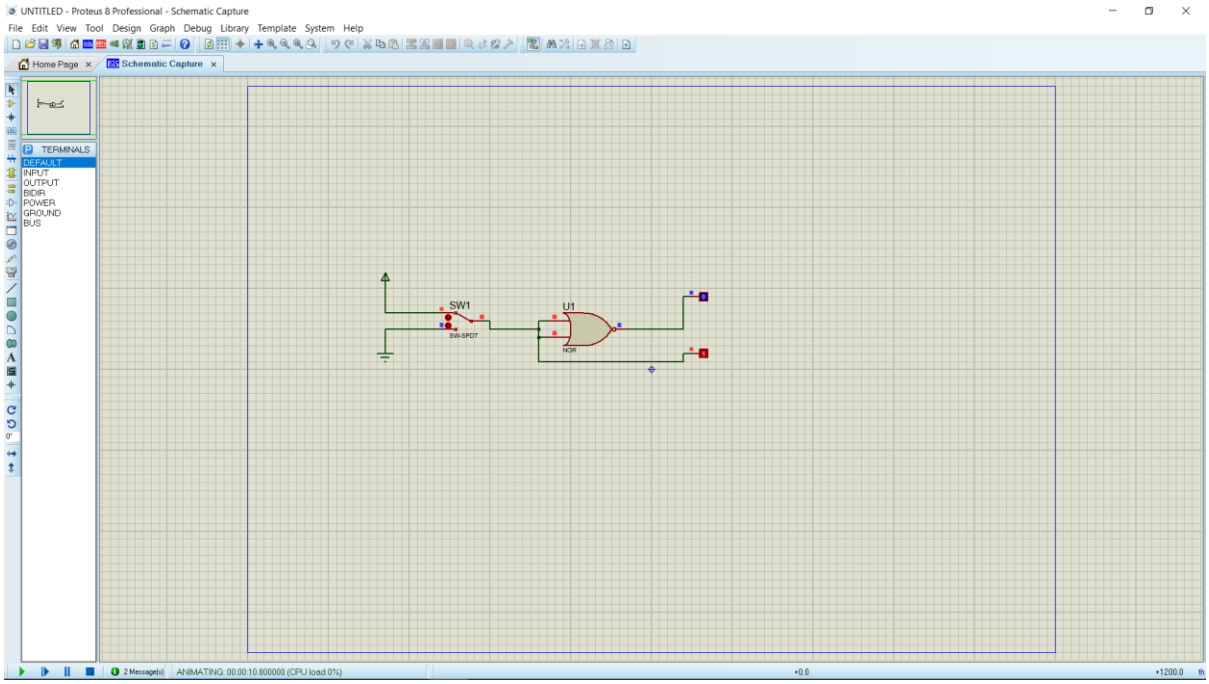
Experiment 1



Picture 1.1. Gate 1 variation

1. Truth table

SW1	L2	L1
0	0	1
1	1	0

2. Time diagram

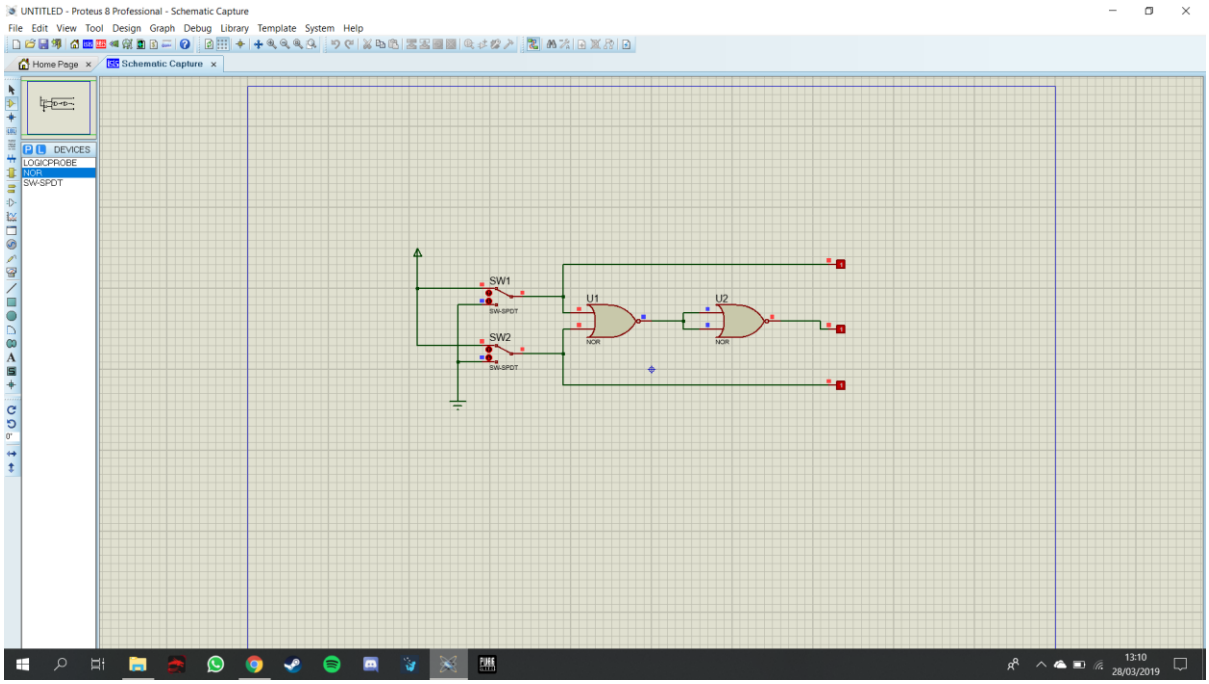
L1

L2

3. Conclusion

The NOR gate in picture 1.1 forms the logic of the NOT gate

Experiment 2



Picture 2.1. Gate 2 variation

1. Truth table

SW1	SW2	L1	L2	L3
0	0	0	0	0
1	0	1	0	1
0	1	0	1	1
1	1	1	1	1

2. Time diagram

L1

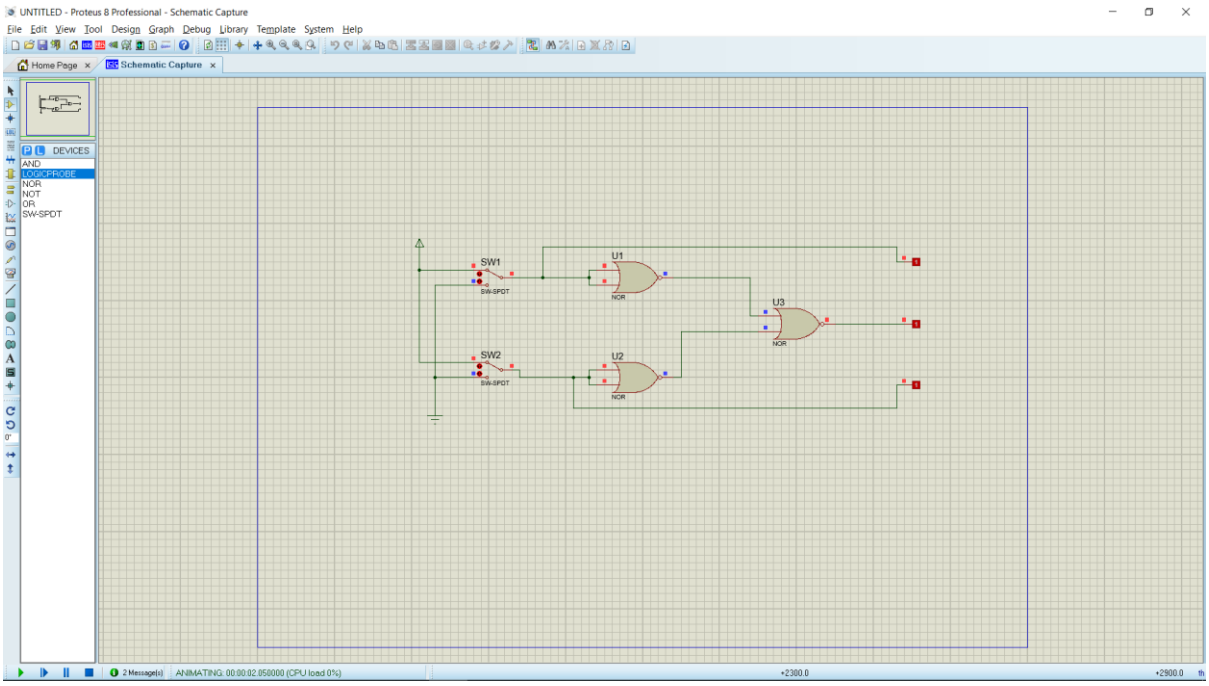
L2

L3

3. Conclusion

The NOR gate in picture 2.1 forms the logic of the OR gate

Experiment 3



Picture 3.1. Gate 3 variation

1. Truth table

SW1	SW2	L1	L2	L3
0	0	0	0	0
1	0	1	0	0
0	1	0	1	0
1	1	1	1	1

2. Time diagram

L1

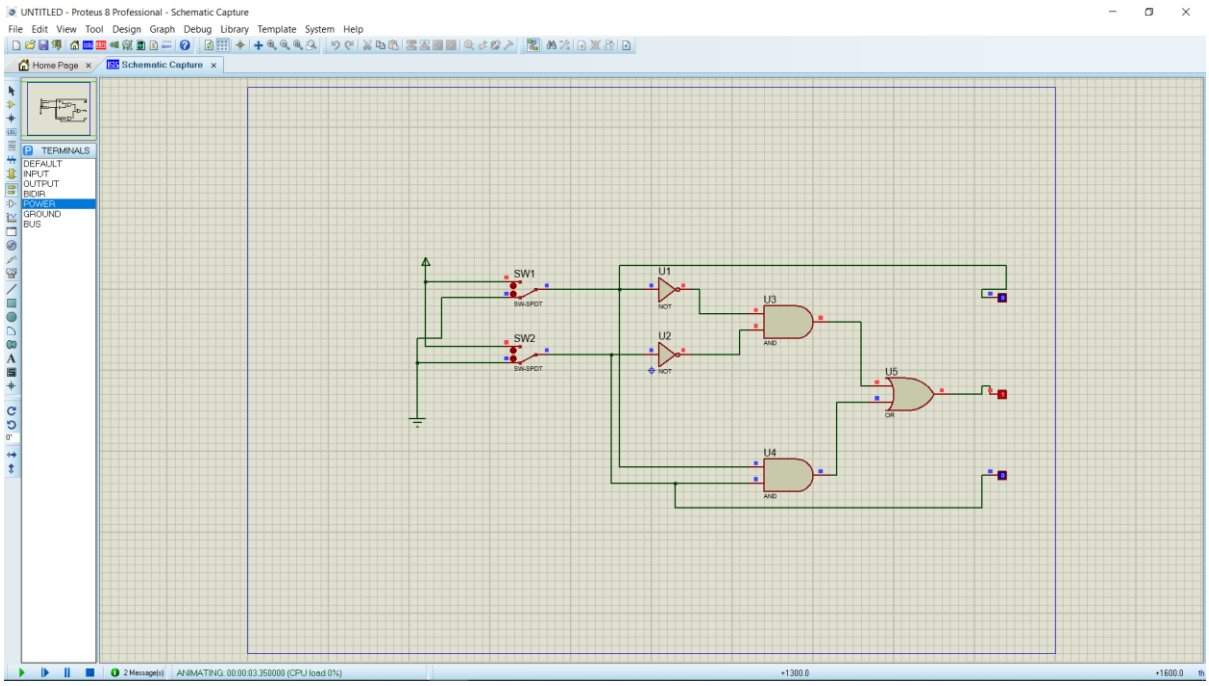
L2

L3

3. Conclusion

The NOR gate in picture 3.1 forms the logic of the AND gate

Experiment 4



Picture 4.1. Gate 4 variation

1. Truth table

SW1	SW2	L1	L2	L3
0	0	0	0	1
1	0	1	0	0
0	1	0	1	0
1	1	1	1	1

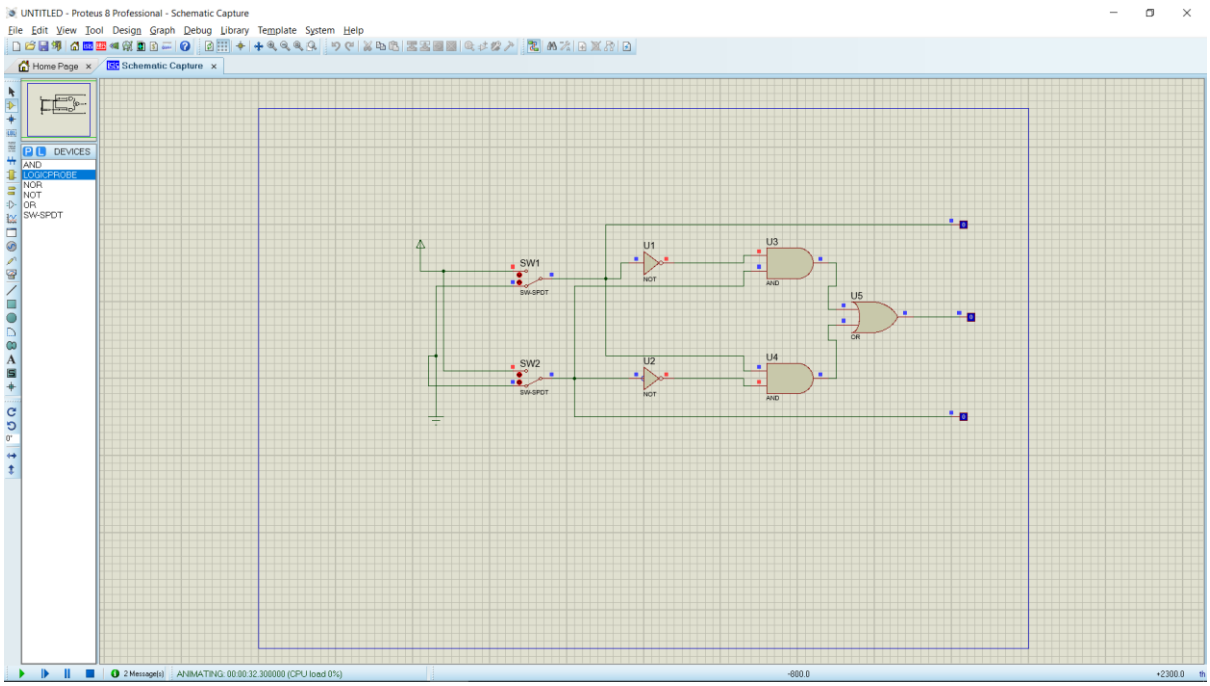
2. Time Diagram

L1

L2

3. Conclusion
   a. The NOR gate in picture 4.1 forms the logic of the XNOR gate

Experiment 5



Picture 5.1. Gate 5 variation

1. Truth Table

SW1	SW2	L1	L2	L3
0	0	0	0	0
1	0	1	0	1
0	1	0	1	1
1	1	1	1	0

2. Diagram Waktu

L1

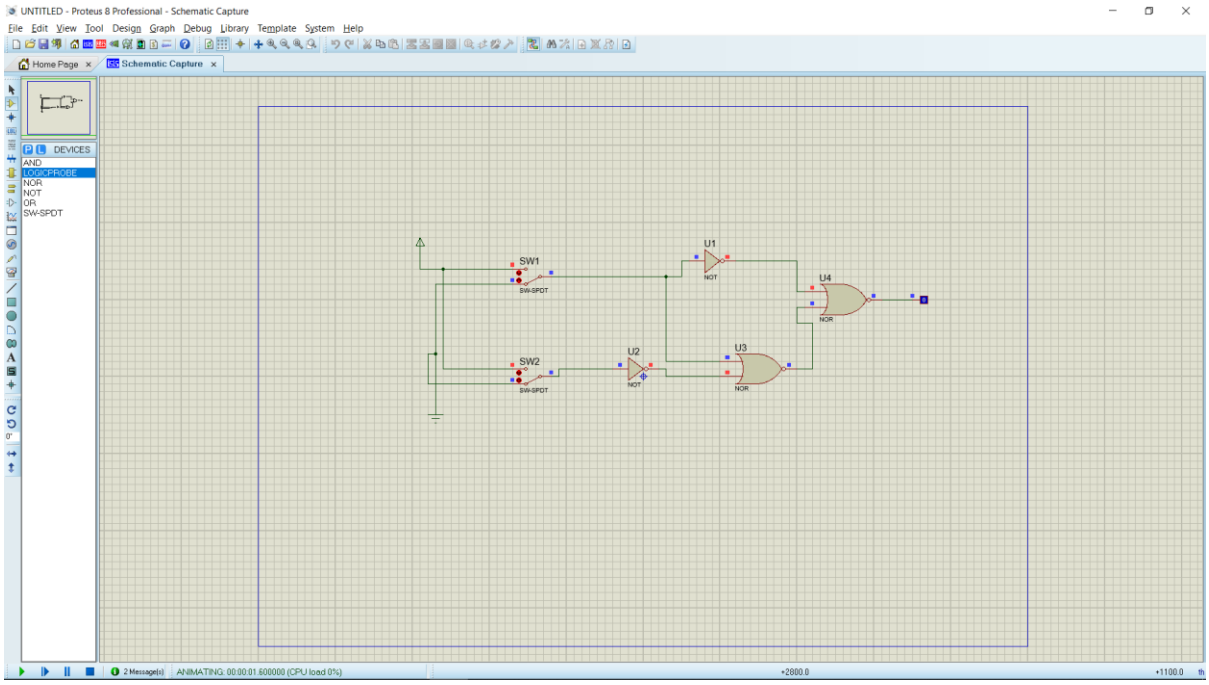
L2

L3

3. Conclusion

The NOR gate in picture 4.1 forms the logic of the XOR gate

Additional Experiment 1



Picture 6.1. Set of gate

1. Truth Table

X	Y	F
0	0	0
0	1	0
1	0	1
1	1	1

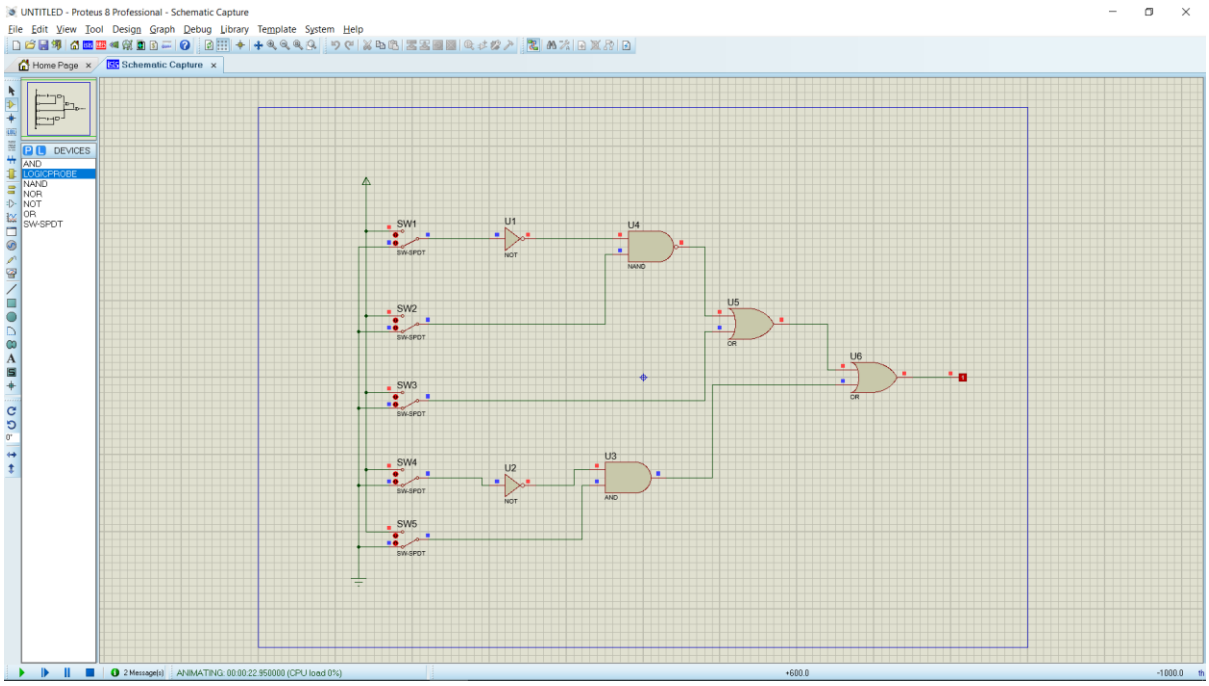
2. Time Diagram

L1

3. Boolean Function

$F = \neg(\neg X + \neg (X + \neg Y)) = X(X + \neg Y)$

Additional Experiment 2



Picture 7.1. Set of gate for boolean function F = **(**⌐ **(**⌐A.B) + C) + (⌐D.E))