



# PREMIER UNIVERSITY CHITTAGONG

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

**Course Code : EEE 314**  
**Course Title : Control System Laboratory**  
**Report No : 02**  
**Name of the Report : To observe AND , OR , Not gate  
logic operation using PLC**  
**Date of Performance : 21/10/2019**  
**Date of Submission : 19/10/2019**

REMARKS

SUBMITTED BY
Student ID : 1402710200740
Department : CSE
Year : 2019
Semester : 7th
Group : C7A1

**Ojective** : To observe AND , OR , Not gate logic operation using PLC

**Instrument** : ✧ PLC Software .

✧ CPU 1212C DC/DC/DC .

✧ Siemens S7-1200 PLC CPU .

✧ Circuit Board .

**Ladder Diagram :**

1.AND Logic Operation :

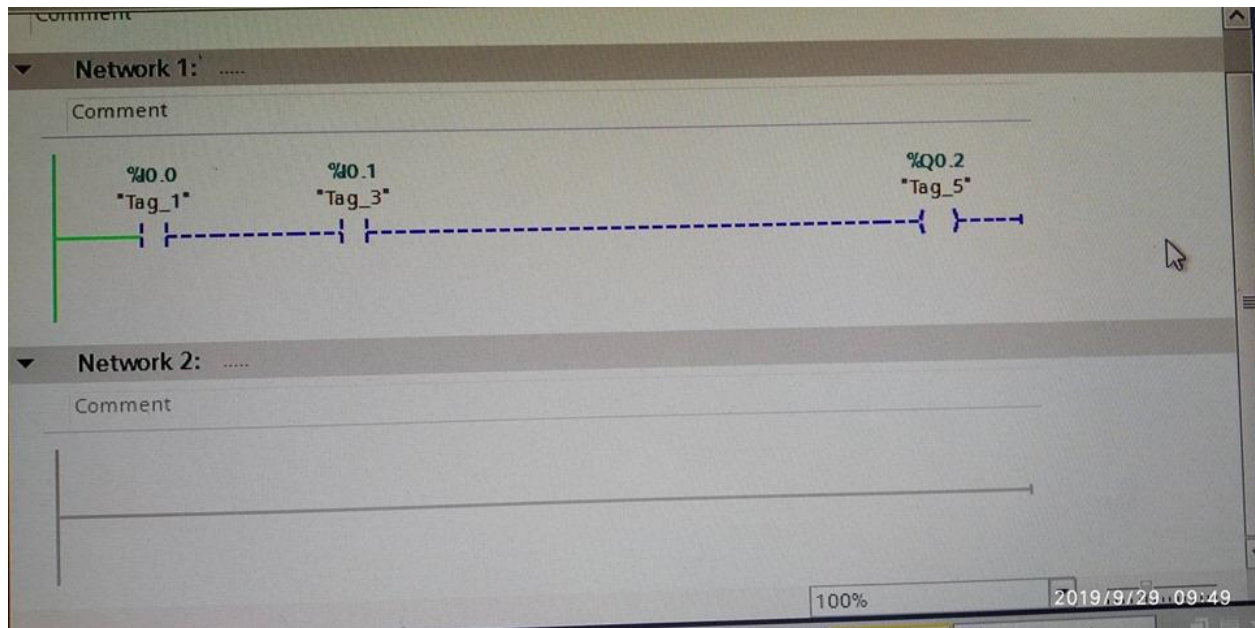


Fig 1 : Ladder Diagram(AND gate) .



Fig 1.1 : AND gate

AND gate is a basic digital logic gate that implements logical conjunction .

It works according to the truth table

A	B	X
0	0	0
0	1	0
1	0	0
1	1	1

Fig 1.01: Truth Table (AND gate)

## 2.XOR Logic Operation :

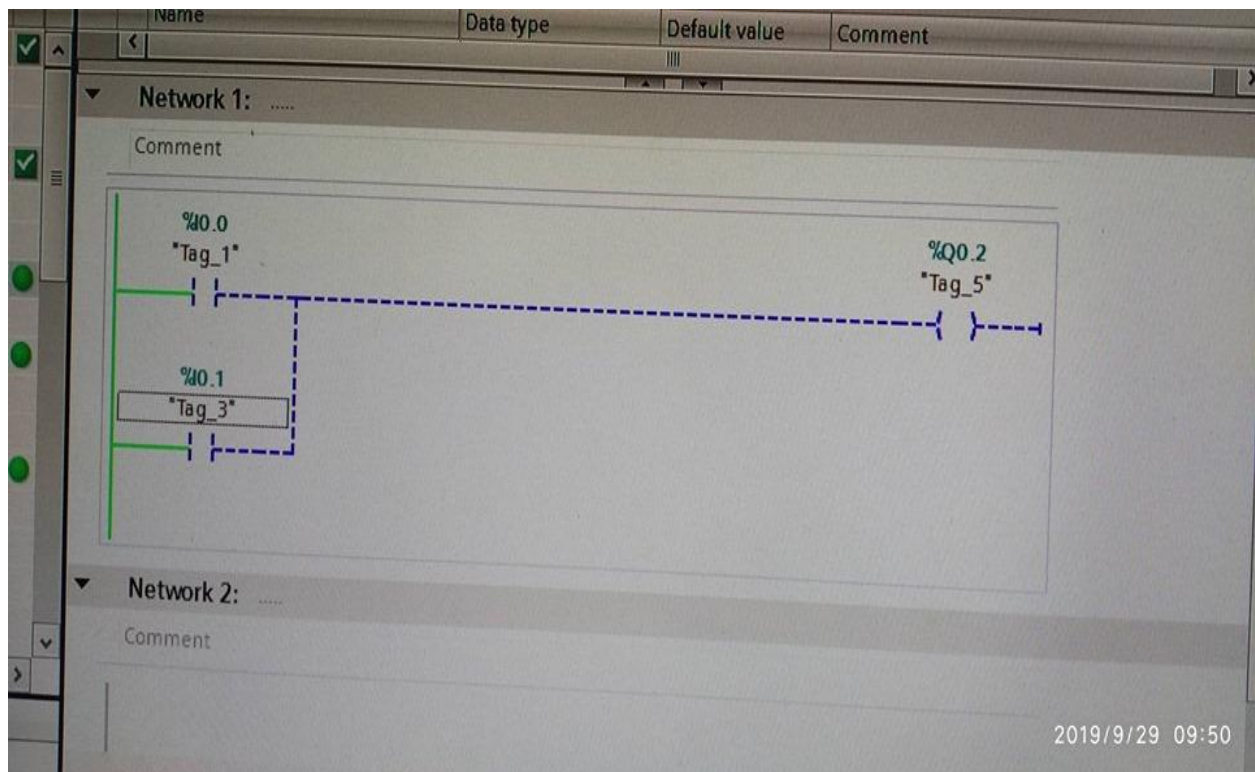
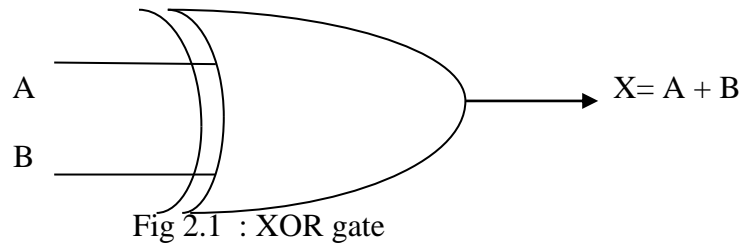


Fig 2 : Ladder Diagram(XOR gate) .



It works according to the truth table

A	B	X
0	0	0
0	1	1
1	0	1
1	1	0

Fig 2.01: Truth Table( XOR gate )

### 3.NOT Gate Operation :

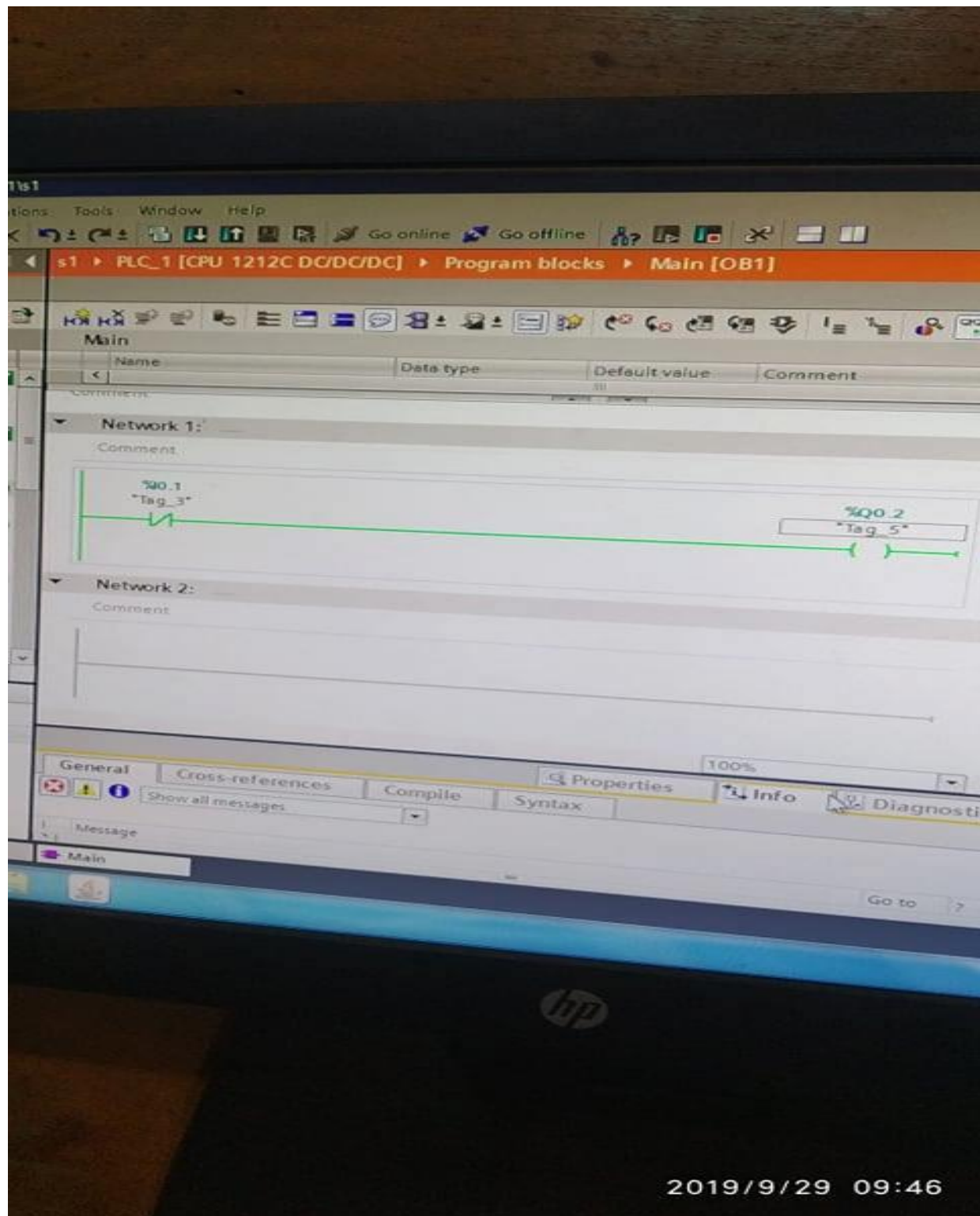


Fig 3 : Ladder Diagram(NOT gate) .

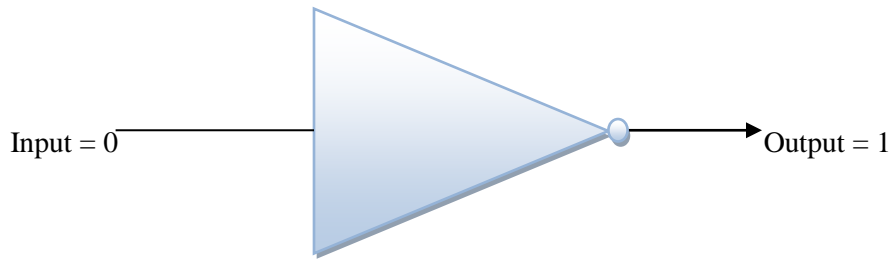


Fig 3.1 : NOT gate

It works according to the truth table

Input	Output
0	1
1	0

Fig 3.01: Truth Table( NOT gate )

**Discussion :** I created a project place in PLC software to do the process, which is required. Then I selected the needed elements in the work field from which is included in this software. I selected the Siemens S7-1200 PLC CPU and CPU 1212C DC/DC/DC in this workplace, then I created the Ladder Diagram to give inputs and get outputs.

Ladder diagram, better known as ladder logic, is a programming language used to program PLCs. Outputs don't have to be physical, though, and can represent a single bit in the PLC's memory. This bit can then be used later on in the code as another input.

I observed the output of AND gate, OR gate and NOT gate using PLC, then by using the inputs logic of the given truth table, I got the solution.