Experiment - 1

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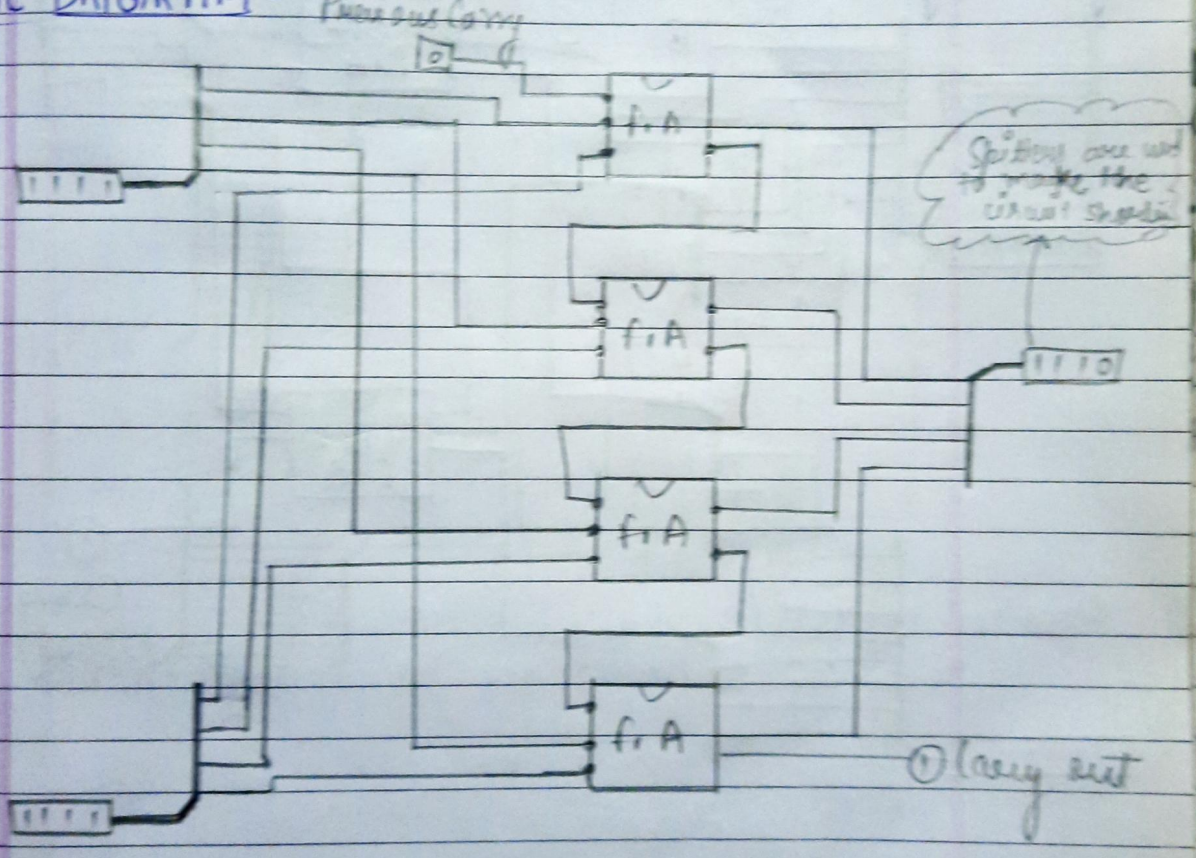
AIM - To verify four bit full adder.

Software Used - Logisim Software

Implementation -

The four bit full adder circuit is implemented using four 1-bit full adders.

LOGIC DIAGRAM -



Result -

This circuit is verified by changing the input value in the circuit

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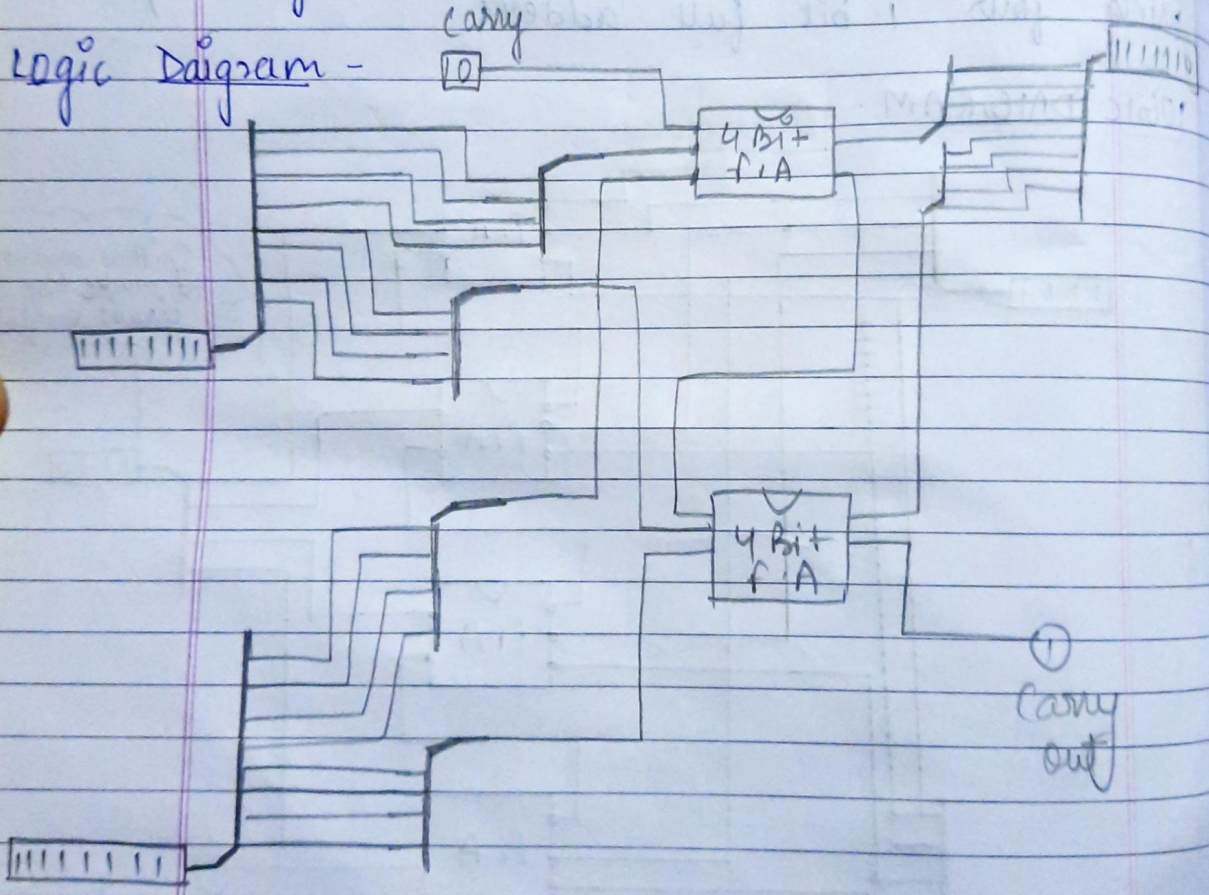
Experiment 2

AIM - To verify 8-bit full adder.

Software Used - Logisim Software

Implementation - The 8-bit full address is implemented using two 4-bit adders.

Logic Diagram -



Result - The circuit is verified by changing the input values in the circuit.

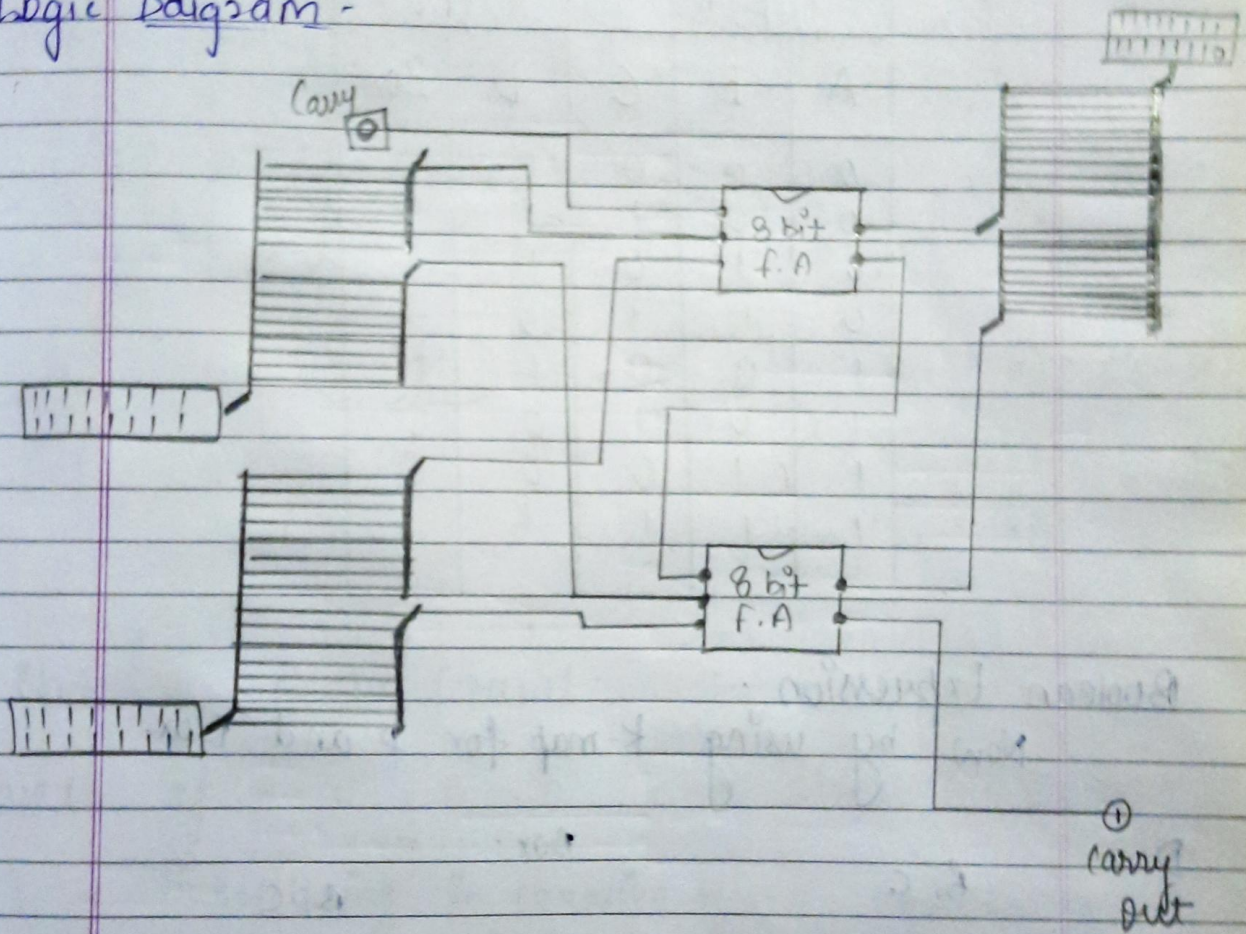
Experiment - 3

Aim - To verify 16-bit full adder

Software Used - Logisim Software.

Implementation - The 16-bit full adder is implemented by using two 8-bit full adders.

Logic Diagram -



Result - The circuit is verified by changing value in the circuit.

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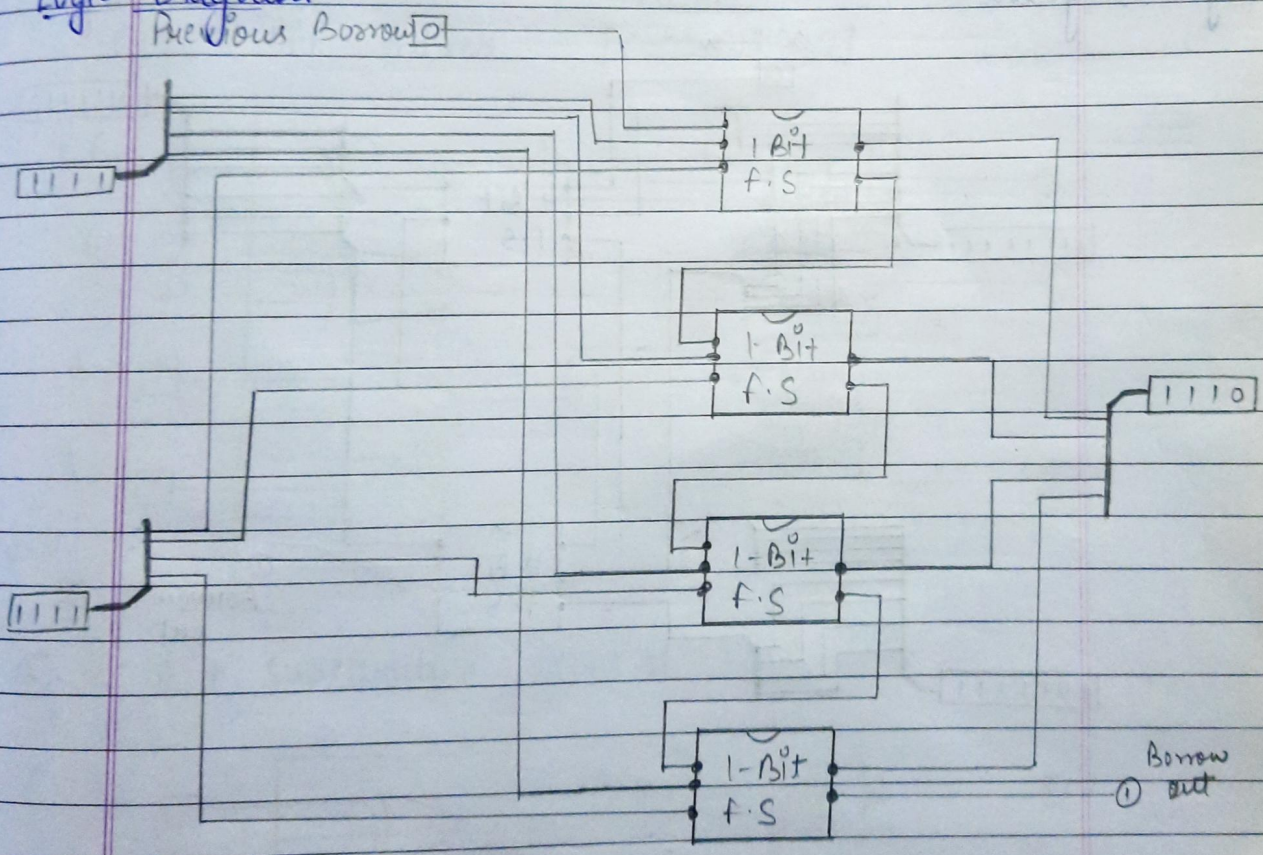
Experiment - 5

AIM - To verify 4-bit substractor

Software Used - Logisim software

Implementation - The four bit substractor is implemented using four 1-bit substractors.

Logic Diagram -



Conclusion -

The circuit is verified by changing the input value in the circuit.

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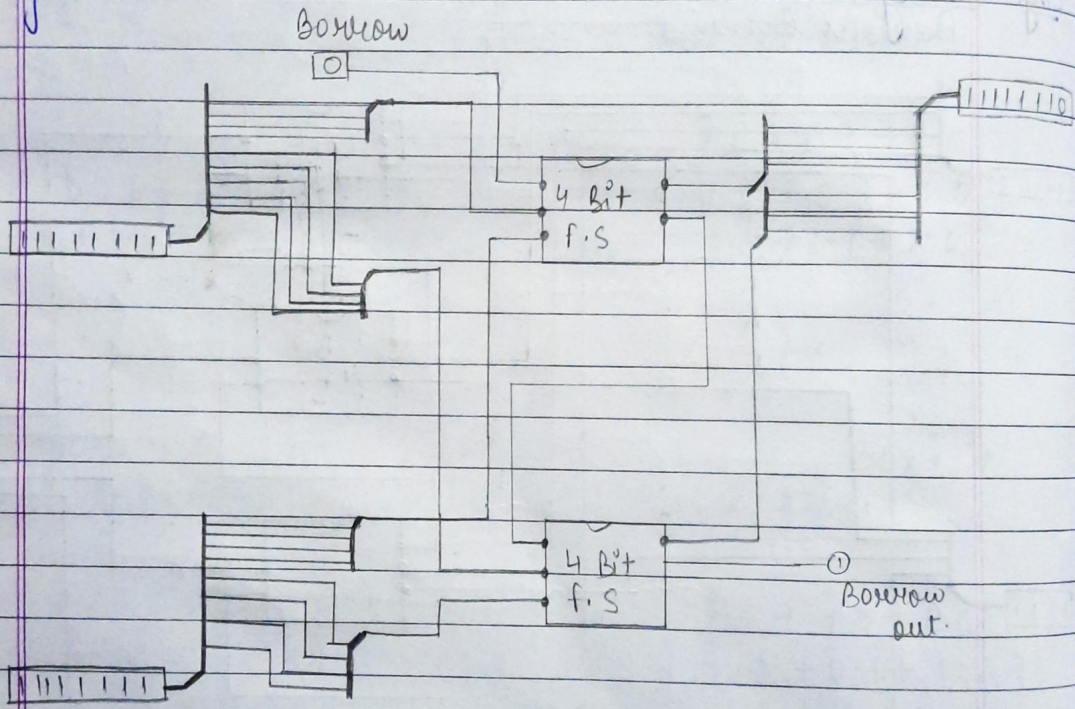
Experiment - 6

AIM - To verify 8-bit Substractor.

Software used - Logisim Software

Implementation - The 8-bit Substractor is implemented using 2 four-bit Substractors.

Logic Diagram -



Conclusion -

The circuit verified by changing the input values in the circuit.

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Experiment · 7

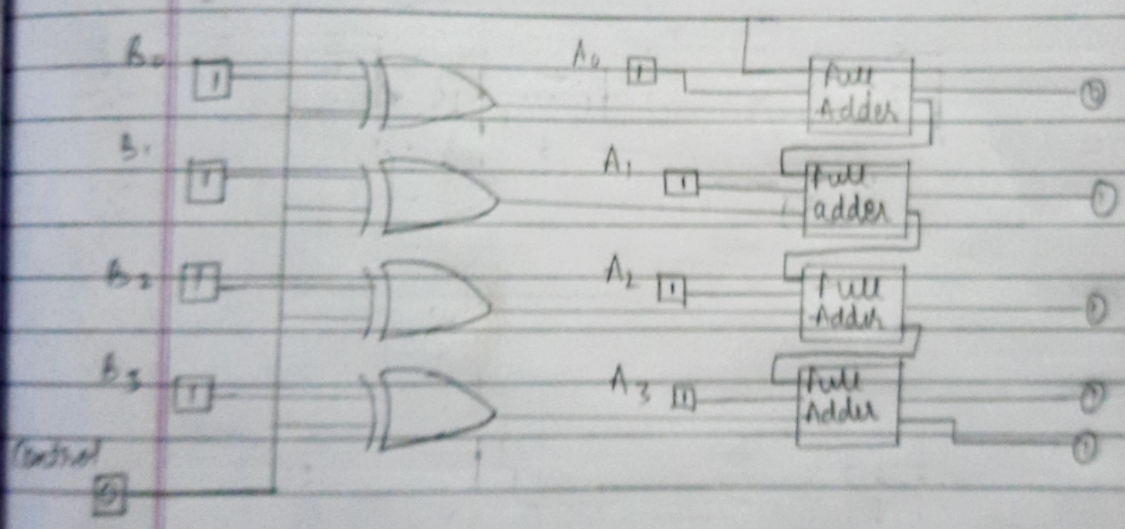
AIM - To combine 4-bit adder and substractor in one circuit

Software used - logisim software

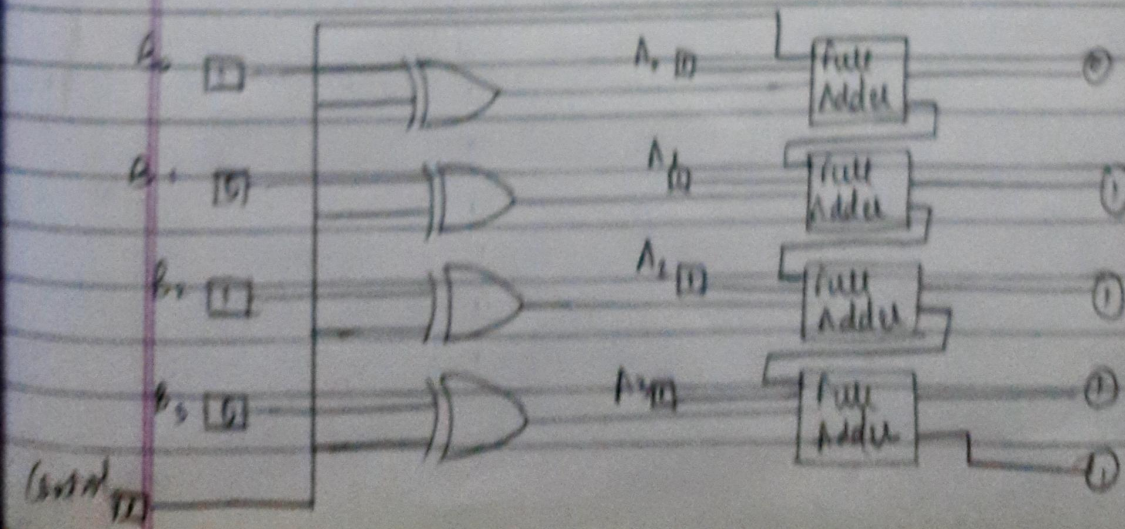
Implementation - The combined circuit is implemented by using 4 XOR gates & 4 full adders.

Logic Diagram -

① 4 bit Adder [control = 0]



② 4-Bit Substractor [Control = 1]



Conclusion -

The same circuit implements 4 bit adder circuit when control is kept at logic LOW '0' and 4 bit Substractor circuit when control is kept at Logic "HIGH."

The circuit is verified by changing the input values in the circuit