A B C D A+B+C F=(A+B+C).D

0 0 0 0 0 0

0 0 0 1 0 0

0 0 1 0 1 0

0 0 1 1 1 1

0 1 0 0 1 0

0 1 0 1 1 1

0 1 1 0 1 0

0 1 1 1 1 1

1 0 0 0 1 0

1 0 0 1 1 1

1 0 1 0 1 0

1 0 1 1 1 1

1 1 0 0 1 0

1 1 0 1 1 1

1 1 1 0 1 0

1 1 1 1 1 1

Table : Truth table

The boolean function is F(A,B,C,D) = A’B’CD + A’BC’D+ A’BCD+ AB’C’D+ AB’CD+ ABC’D+ ABCD

We used 3 input XOR gate, NOT gate and AND gate designing the final circuit.