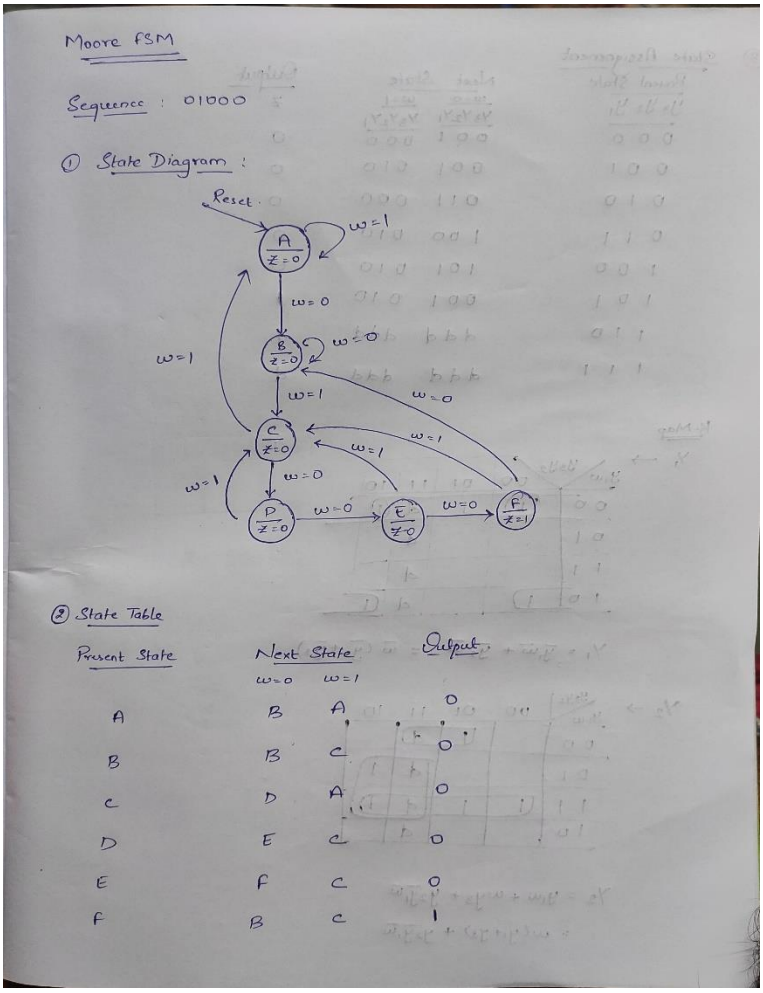
Digital Project Report

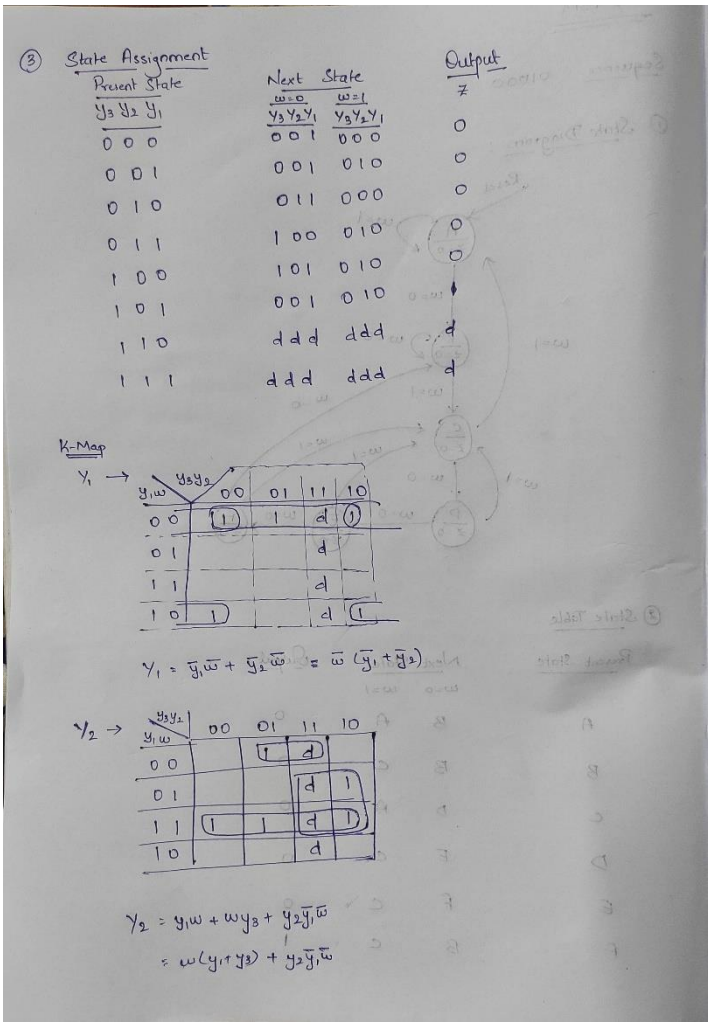
ECE-B-1

Question:

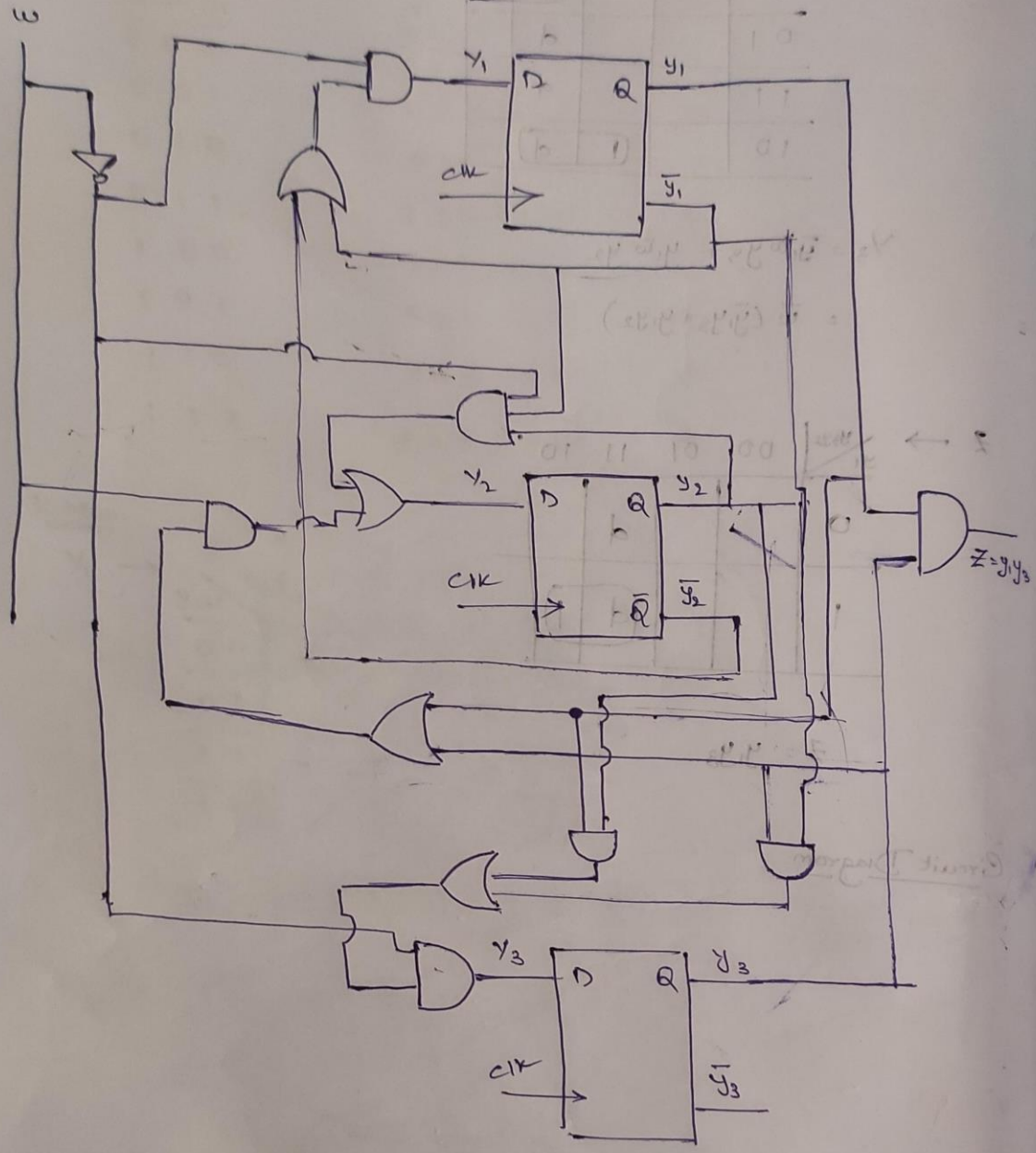
Design a Moore FSM circuit that detects the sequence ‘01000’ using tinkercad

Design Flow:



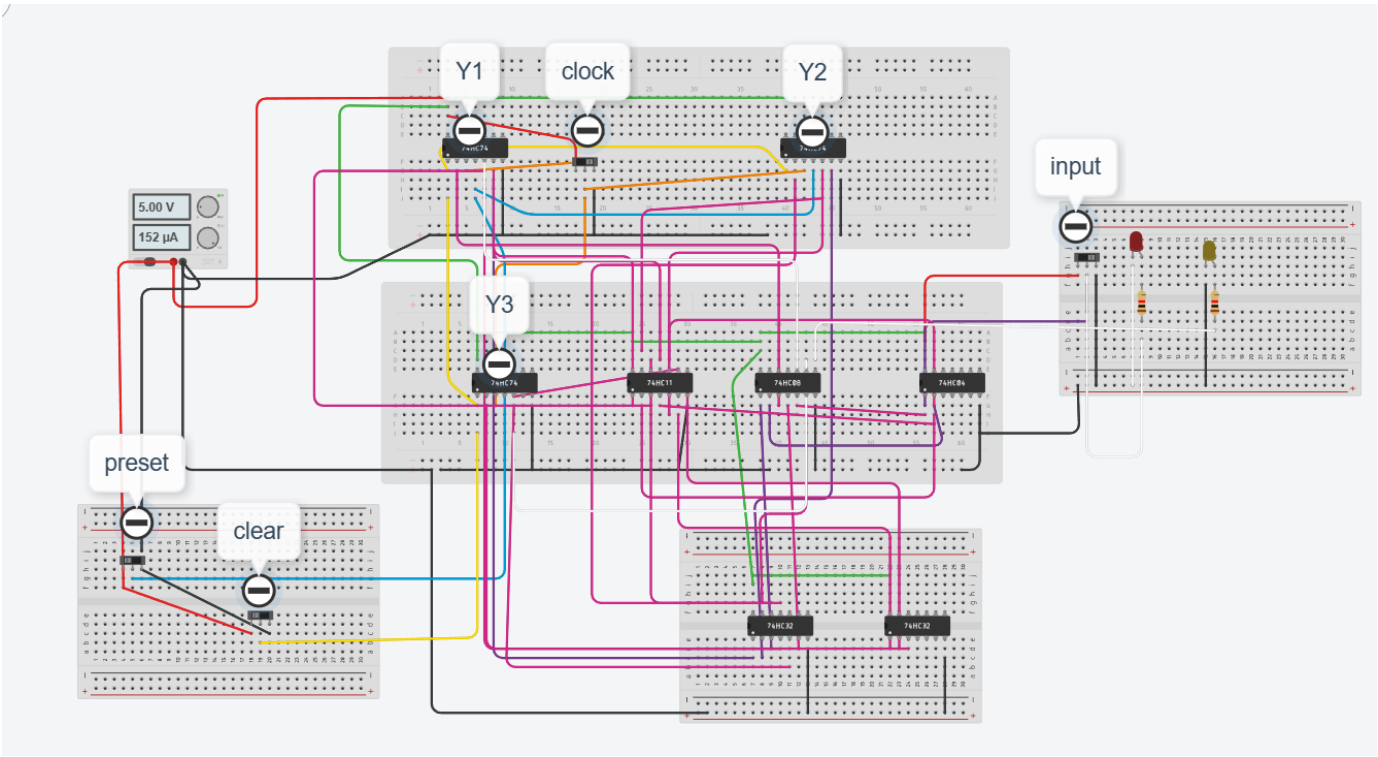


Circuit Diagram

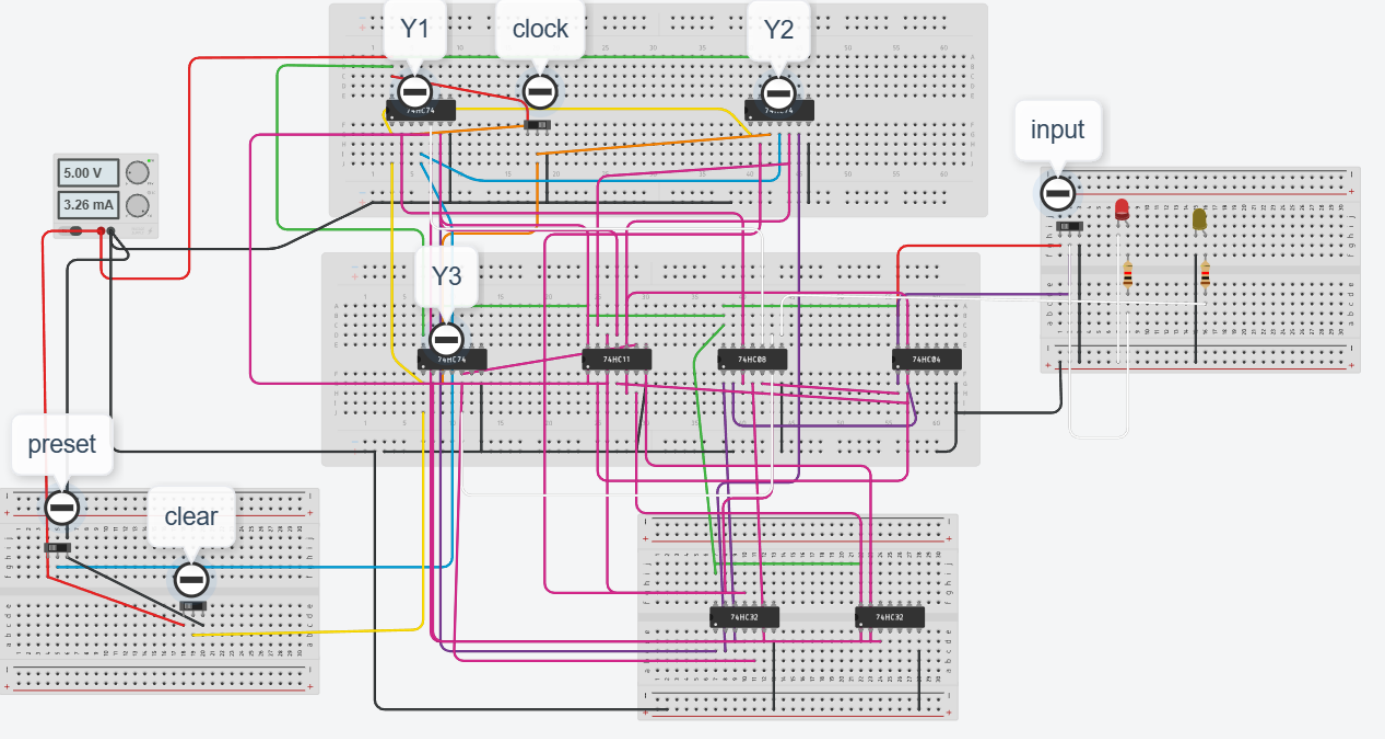


Tinkercad Design used:

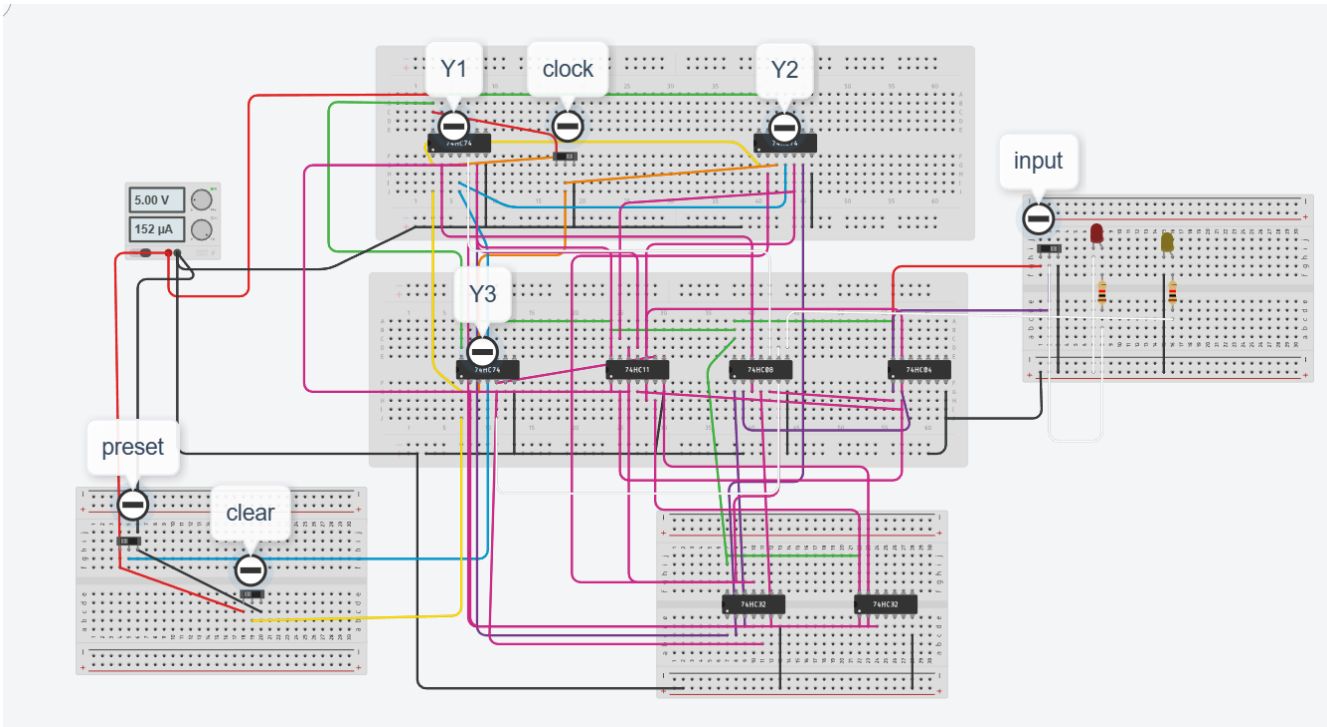
Input (w) = 0 (Red LED is OFF):



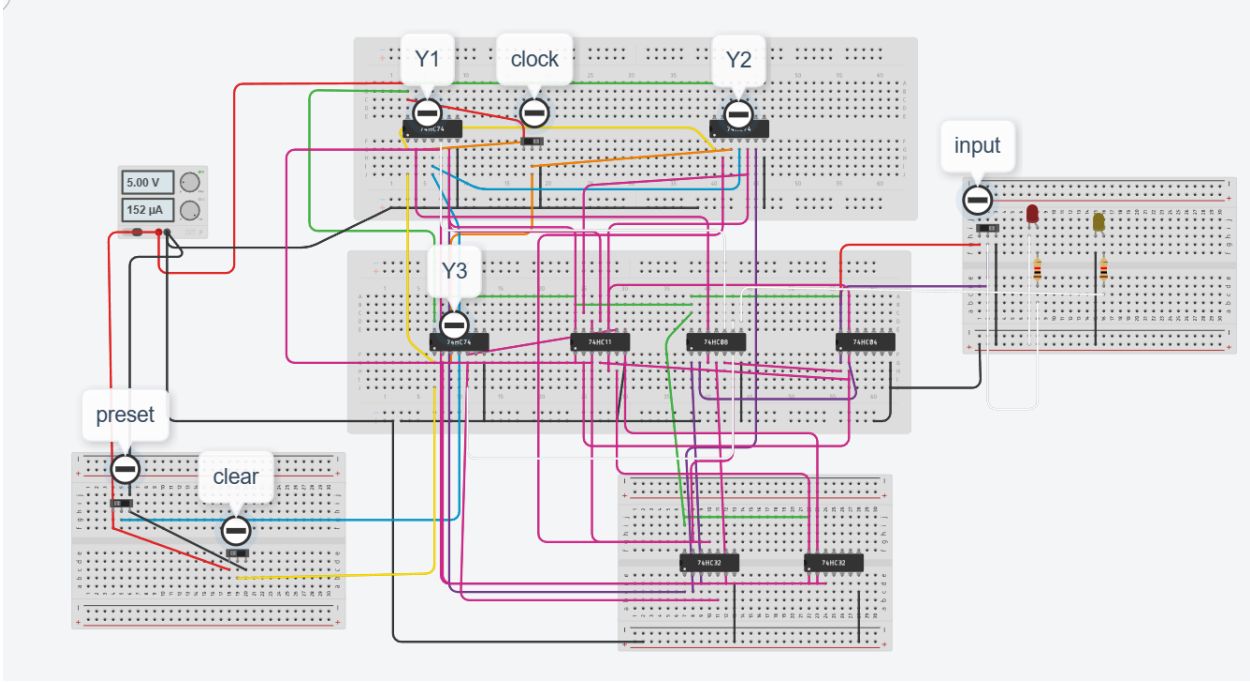
Input (w) = 1 (Red LED is ON):



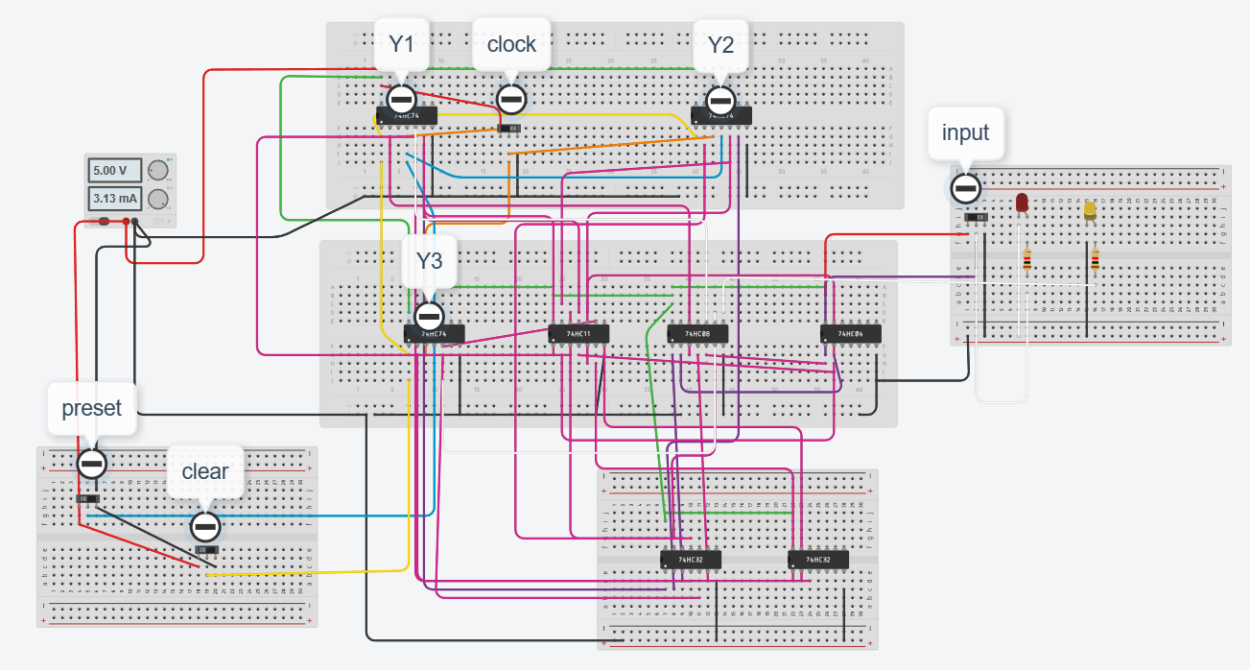
Input (w) = 0 (Red LED is OFF):



Input (w) = 0 (Red LED is OFF):



Input (w) = 0 (Red LED is OFF) and Final Output (Yellow LED is ON [Z=1]):



Inference:

i. Types of Flip-Flops used:
    a. 2 Dual D Flip-Flops (i.e. 3 Flip-Flops)
ii. Number of Logic Gates Used – 4
    a. 3-input AND gate
    b. AND gate
    c. OR gate
    d. NOT gate
iii. Number of clock cycles required to get the output – 5
iv. Sample sequence – 01000

Conclusion:

In this project we implemented Moore FSM sequence detector which detects the sequence ‘01000’ is passed at the input. When the sequence ‘01000’ is detected, the yellow LED turns ON. In other cases, the LED remains in OFF state.