**Digital Electronics and Computer Architecture Laboratory**

**Assignment Number: 06**

**PROBLEM STATEMENT:**

**Design a sequence detector to detect the bit sequence 110 using Mealy Machine.**

**Objectives:**

* **To learn Finite State Machine**
* **To understand Moore and Mealy Machine**
* **To learn and implement Sequence Detector**

**IC’s Used:**

|  |  |
| --- | --- |
| **IC Number** | **IC Name** |
| 74LS76 | Dual MS JK Flip Flop |
| 74LS08 | Quad 2-Input AND Gate |

**Platform Used: Digital Trainer Kit**

**Theory:**

1. Application of state machine
2. Comparison Mealy Machine with Moore Machine
3. Sequence detector circuit

**Procedure:**

**Design a sequence detector to detect the bit sequence 110 using Mealy Machine.**

**Steps for designing**

1. Draw state diagram

2. Make a state table

3. Apply state reduction if required

4. Assign states

5. Re-write the state table using states assigned

6. Prepare state transition table

7. Use k-maps to find inputs to Flip Flop

8. Draw the circuit diagram.

**Conclusion:**

**Post Lab Questions:**

1. What is Sequence Detector?
2. What are applications of Sequence Detector?