Lab Report 7

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Experiment 7 - Binary Cell of RAM

Objective:

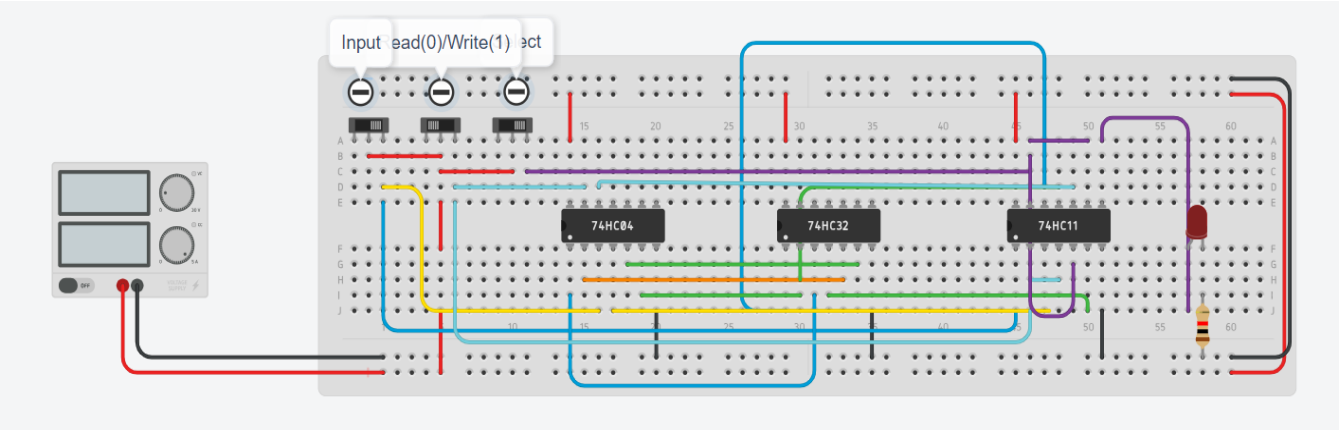
To create and confirm the functionality of a binary storage unit within a RAM using RS flip-flops.

Electronic Components Required:

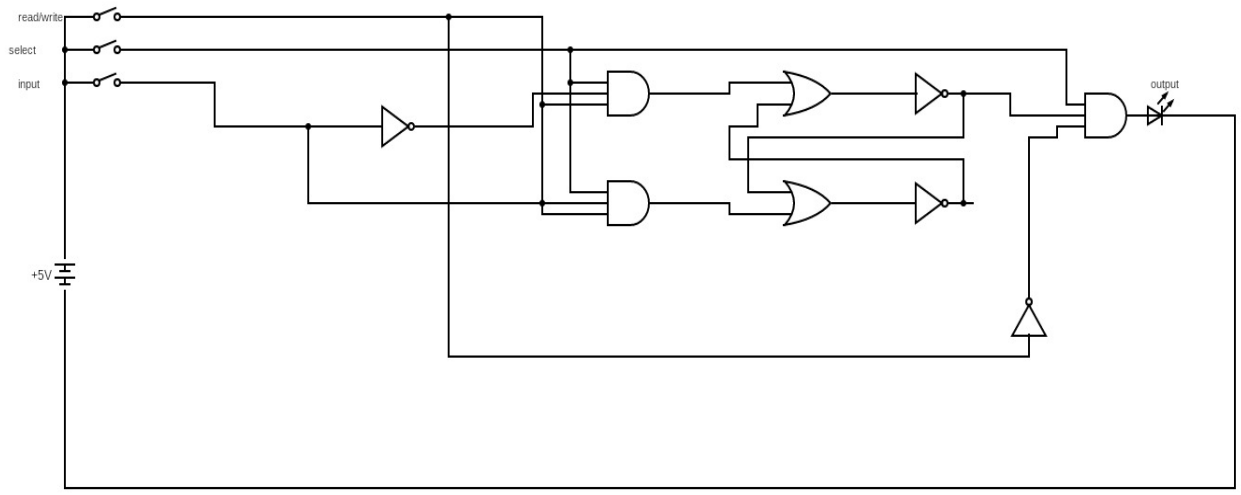
1. Digital Test Kit
2. 74HC32 IC 7 OR Gate
3. 74HC11 IC 3-Input AND Gate
4. 74HC04 IC NOT Gate (Hex-Inverter)
5. Resistor
6. Voltage Supply
7. Normal Wires

Reference Circuit:

1. Tinkercad Screenshot



2. Circuit Diagram

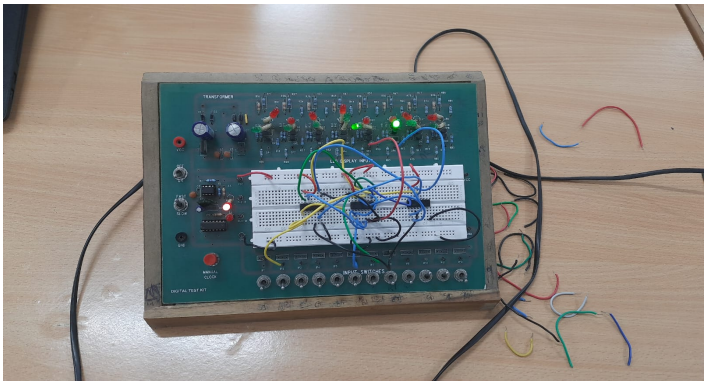


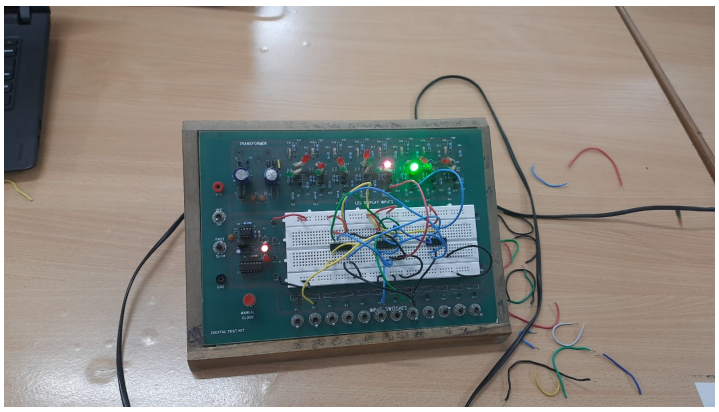
Procedure:

1. Connect the VCC and GND pins of Arduino to the breadboard.
2. Take the three inputs from switches of the digital test kit & connect them to the correct terminal as shown in the reference circuit.
3. Connect VCC and GND pins of the ICs to the breadboard.
4. Make the remaining connections as per the reference circuit.

Observations:

We observe the following truth table:





Select	Read/Write	Input	Q	Output LED
0	X	X	Q(t-1)	0
1	0 (Read)			Q(t-1)
	1 (Write)	0	0	0
		1	1	

Conclusions:

We constructed a Binary Cell for RAM and checked its working. We verified results by performing all operations on available inputs.

Link for Tinkercad Simulation:

https://www.tinkercad.com/things/at5n2gMGJTM-7-binary-cell-for-ram/editel?sharecode=J3Dq9BqMi-giVB1Gr1E6_JMFri1kyKxtUKBH4YFHEmE