

Hardware Assignment Report

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Abstract—I made a random number generator using flipflops, decoder, X-OR Gate, 555 IC, along with some basic things required in this hardware assignment.

Component	Value	Quantity
Breadboard		1
Seven Segment Display	Common Anode	1
X-OR Gate	7486	1
555 IC		1
Decoder	7447	1
Flip Flops	7474	2
Resistor	1 K Ω	1
Capacitor	100 nF	1
Capacitor	10 nF	1
Jumper Wires		

TABLE 0: Components used for this assignment

- 1) According to figure 1, I made the connections of 555 timer circuit

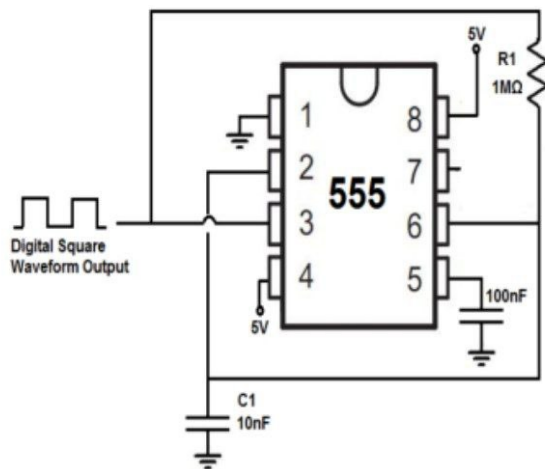


Fig. 1: Connection in 555 timer circuit

- 2) Then I connected Clock output of 555 timer circuit to the clock signal of D-Flip flops. Now I made the circuit for shift registers using a 4 D-Flip flops (using two 7474 IC's) according to the figure 3. Then I connected X-OR gate (7486 IC) according to the figure 2

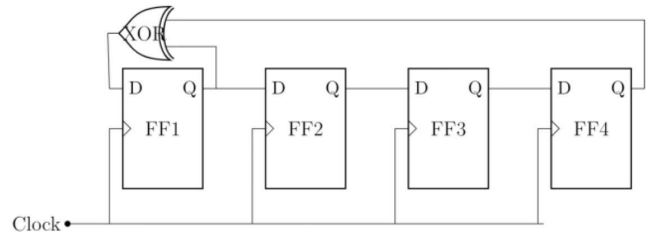


Fig. 2: Connection in X-OR gate

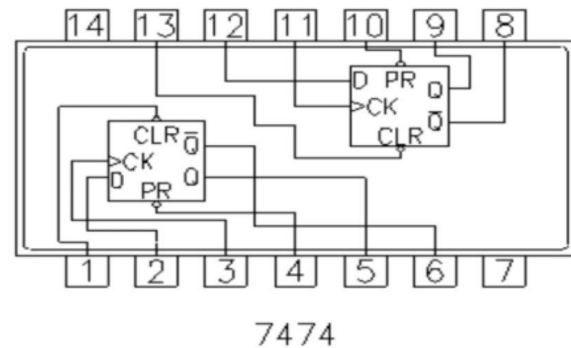


Fig. 3: Connections in 7474

- 3) After that I made the connections with the decoder (7447). Then I connected the seven segmented display and then connected it with the decoder (7447). At last I connected all the independent parts with each other and then connected the power source. Finally after all the connections are made the block diagram looks like figure 4

- 4) The Output is shown in figure 5

