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 Diplay	Common Anode	1
X-OR Gate	7486	1
555 IC		1
Decoder	7447	1
Flip Flops	7474	2
Resistor	1 KΩ	1
Capacitor	100 nF	1
Capacitor	10 nF	1
Jumper Wires		

TABLE 0: Components used for this assignment

1) According to figure1, I made the connections of 555 timer circuit

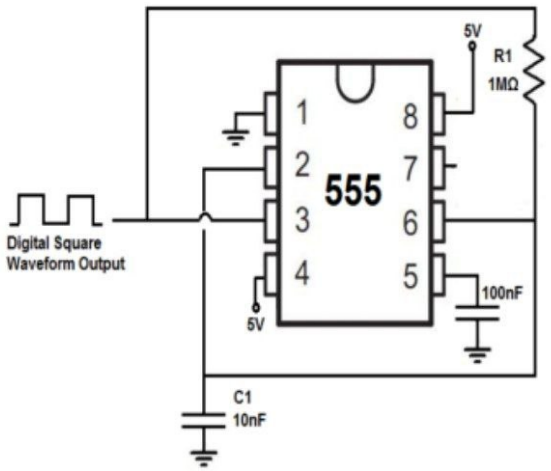

Fig. 1: Connection in 555 timer circuit

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 XOR gate (7486 IC) according to the figure 2

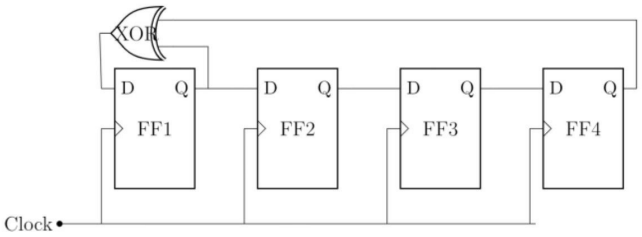

Fig. 2: Connection in XOR gate

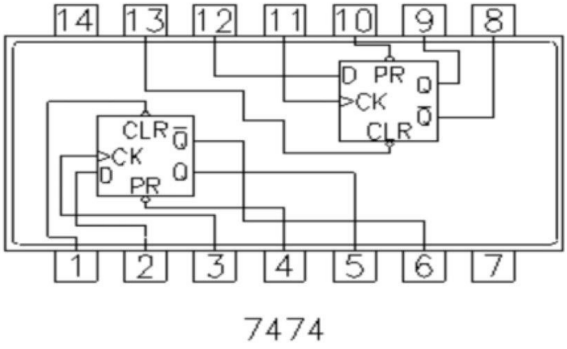

Fig. 3: Connections in 7474

3) After that i made the connections with the decoder(7447). Then I connected The seven segmented display and then connected it with the dceoder(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 will be different numbers displaying on the seven segmented display.It is shown in figure 5

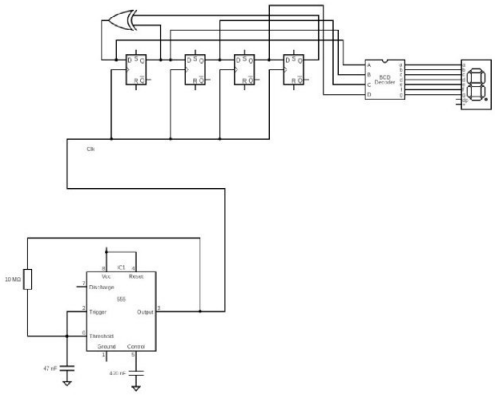

Fig. 4: Block Diagram

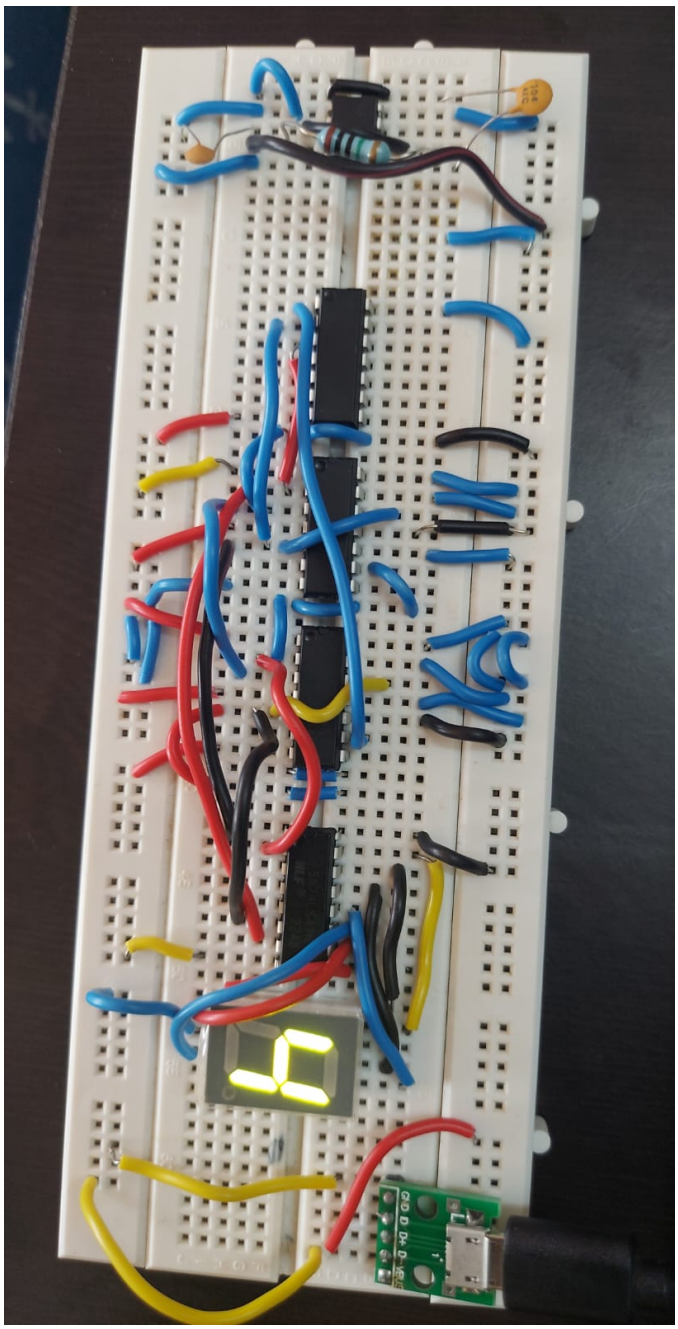

Fig. 5: output