

HARDWARE ASSIGNMENT REPORT

SOMALARAJU BHAVYA SHLOKA

1 COMPONENTS LIST

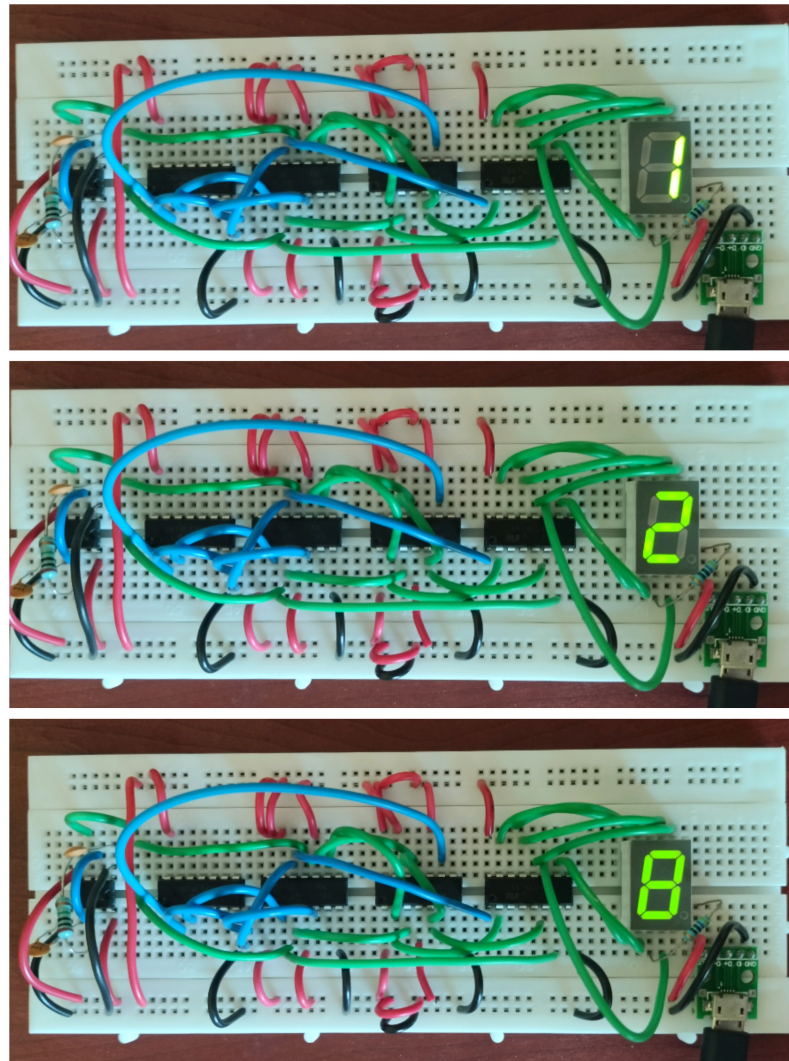
COMPONENT	VALUE	QUANTITY
Breadboard		1
Seven Segment Display	Common Anode	1
Decoder	7447	1
Flip Flop	7474	2
X-OR GATE	7486	1
555 IC		1
Resistor	1Kilo Ohm	1
Resistor	1Mega Ohm	1
Capacitor	100nF	1
Capacitor	10nF	1
Wires		6
Micro USB		1

2 DESCRIPTION

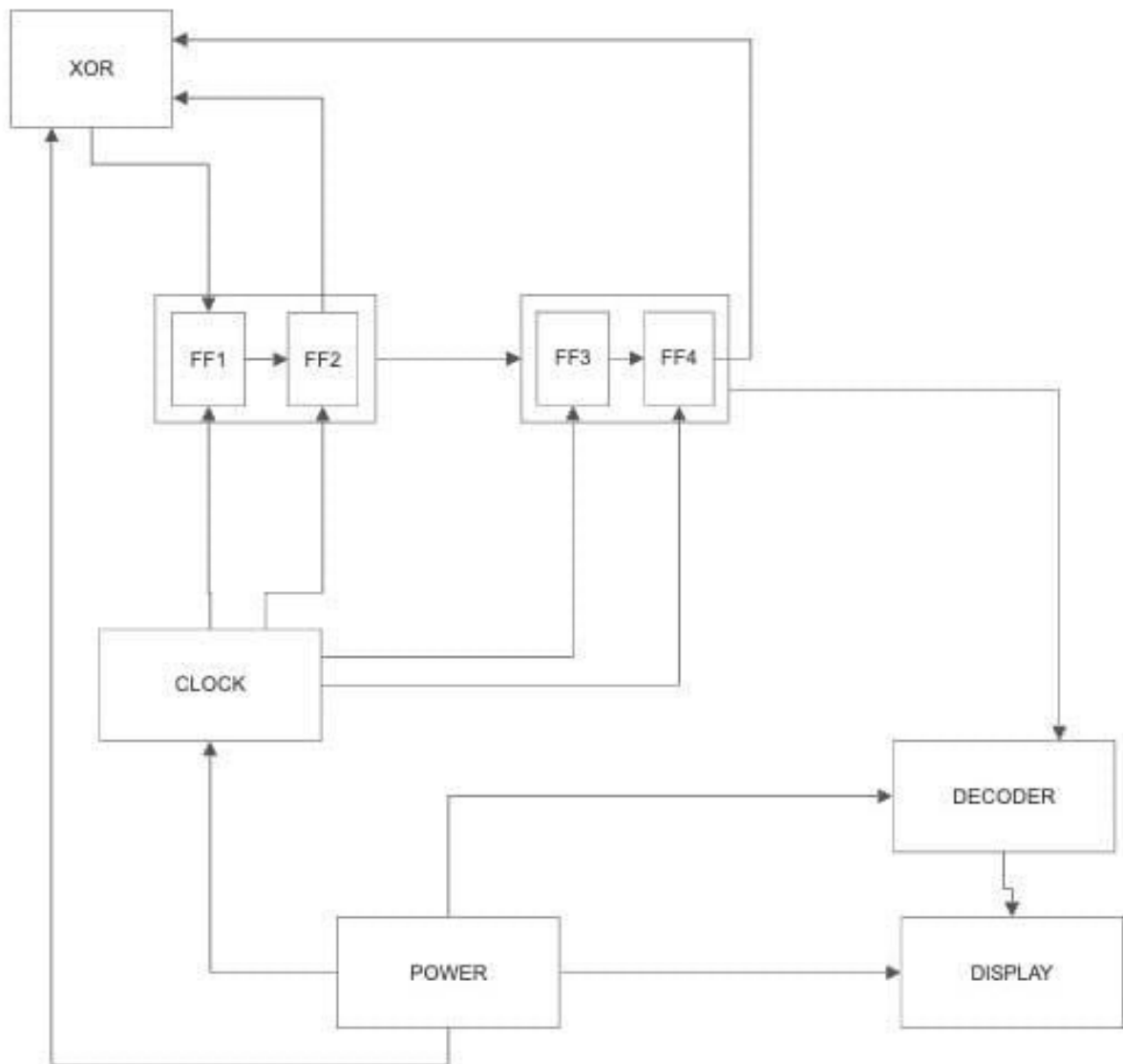
- 1) First, we should provide the complete setup with a power source ,which is given through a MicroUSB cable.
- 2) The positive terminal of the input(shows 5V generally) and the negative terminal is grounded(i.e, voltage is 0) are connected to the 555 IC.
- 3) The 555 IC along with 2 Capacitors of 100nF capacitance each and a resistor of resistance 10MOhms(known as Clock as a whole) takes the input pulse and converts it into a square pulse so that binary digits 0,1 can be stored as Trough and Crest respectively.
- 4) Now, this square pulse is sent to the 7474 IC's each having 2 Flip-Flops ,where 4 bits of binary digits(each 1 bit through each FLIP-FLOP) are outputted randomly by using a 7486 IC which is a X-OR GATE.
- 5) The 4 bits binary number is sent to 7447 IC (known as Decoder) which converts the 4 bits into a 7 bit binary number and is sent to the 7 Segment Display.
- 6) The 7 Segment Display contains 8 Cathodes and a Common Anode. When a cathode receives 1 then the segment connected to it lights up.
- 7) Finally ,the common anode is connected to Vcc through a resistor 1KOhms. The output on the

7 Segment Display will be random numbers from 1-9 and some other symbols for other numbers.

3 OUTPUT IMAGES



4 BLOCK DIAGRAM



Circuit diagram