

# Hardware Assignment

## Random Number Generator using Shift Registers

LAHARI GUNTI  
AI22BTECH11008

(a) Description

This project main aim is random number generaton which is a main application in cryptography,simulations and gaming.This project explores the utilization of IC555 timer circuits with an XOR gate to generate random numbers,7.segment display shows the numbers from 0 to 9 as the basically consist of a load of light emitting diodesconnecting together within a single indicator package.the circuit uses 5V from micro USB and this vcc for the circuit.

(b) The components used in the table are

TABLE (b): Components

| Component        | value        | quantity |
|------------------|--------------|----------|
| bread board      |              | 1        |
| 7segment display | common anode | 1        |
| decoder          | 7447         | 1        |
| flipflop         | 7474         | 2        |
| X-OR GATE        | 7486         | 1        |
| 555 IC           |              | 1        |
| resistor         | 1Kohm        | 1        |
| resistor         | 1Mohm        | 1        |
| capacitor        | 100nF        | 1        |
| capacitor        | 10 nF        | 1        |
| jumper wires     |              | 20       |

(c) Block diagram of circuit and its image  
block diagram is

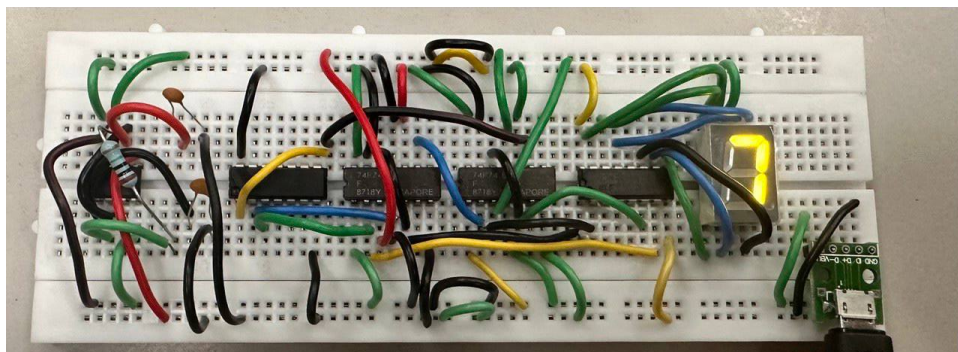


Fig. (c): image of circuit

(d) observation

XOR gate introduces randomness by XORing the signals from the IC555 timer circuit.The resistor and capacitor influence the timing and stability of the circuit affecting the randomness of generated numbers.The displayer effectively presents the random numbers produced by the circuit.

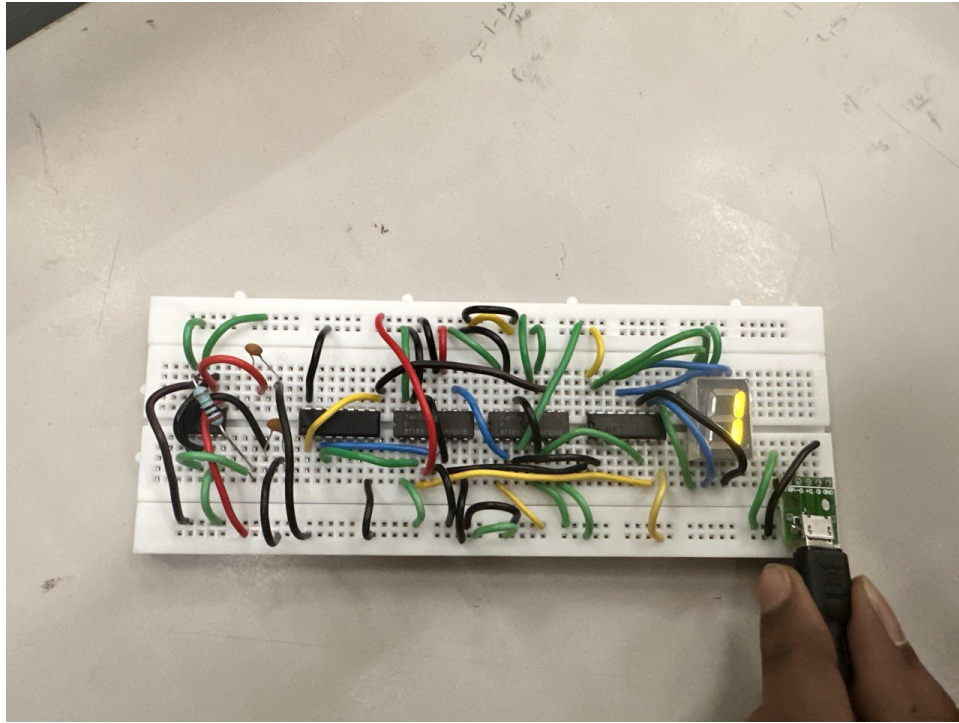


Fig. (c): image of circuit

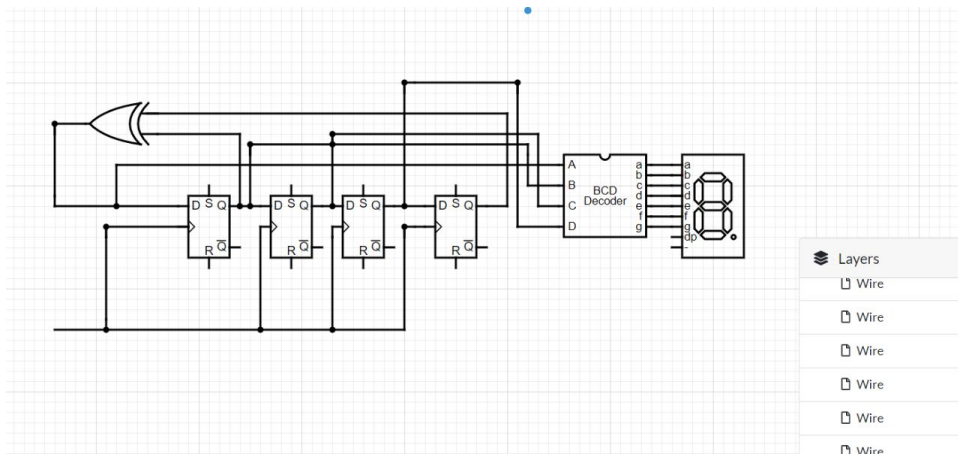


Fig. (c): block circuit