

Hardware Assignment Report

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1 Aim

To make a Random Number Generator using Shift Generators

2 Components

1. Breadboard
2. Seven Segment Display : Common Anode
3. Seven Segment Display Decoder [7447]
4. FlipFlop [7474] x2
5. XOR gate [7486]
6. 555 IC
7. Resistors [10M Ω , 1K ω x2]
8. Capacitors [47nF,470nF]
9. USB micro B breakout board
10. Jumper wires

3 Description

The given circuit is a visual representation of how random variables can be connected to signal processing. When considering the usage of a circuit with a seven-segment display in relation to random variables, it typically involves generating random numbers and displaying them on the seven-segment display. Random variables are variables whose values are determined by chance or probability.

3.1 Overview

The Flip Flops take the input and based on that outputs are generated. The generated outputs are random and the numbers shown are from 1 to 15. The randomness is predictable because this system is deterministic. a deterministic system is a system in which no randomness is involved in the development of future states of the system.

The order of the output in this case follows : 1, 3, 7, 15, 14, 13, 10, 5, 11, 6, 12, 9, 2, 4, 8

4 Block Diagram

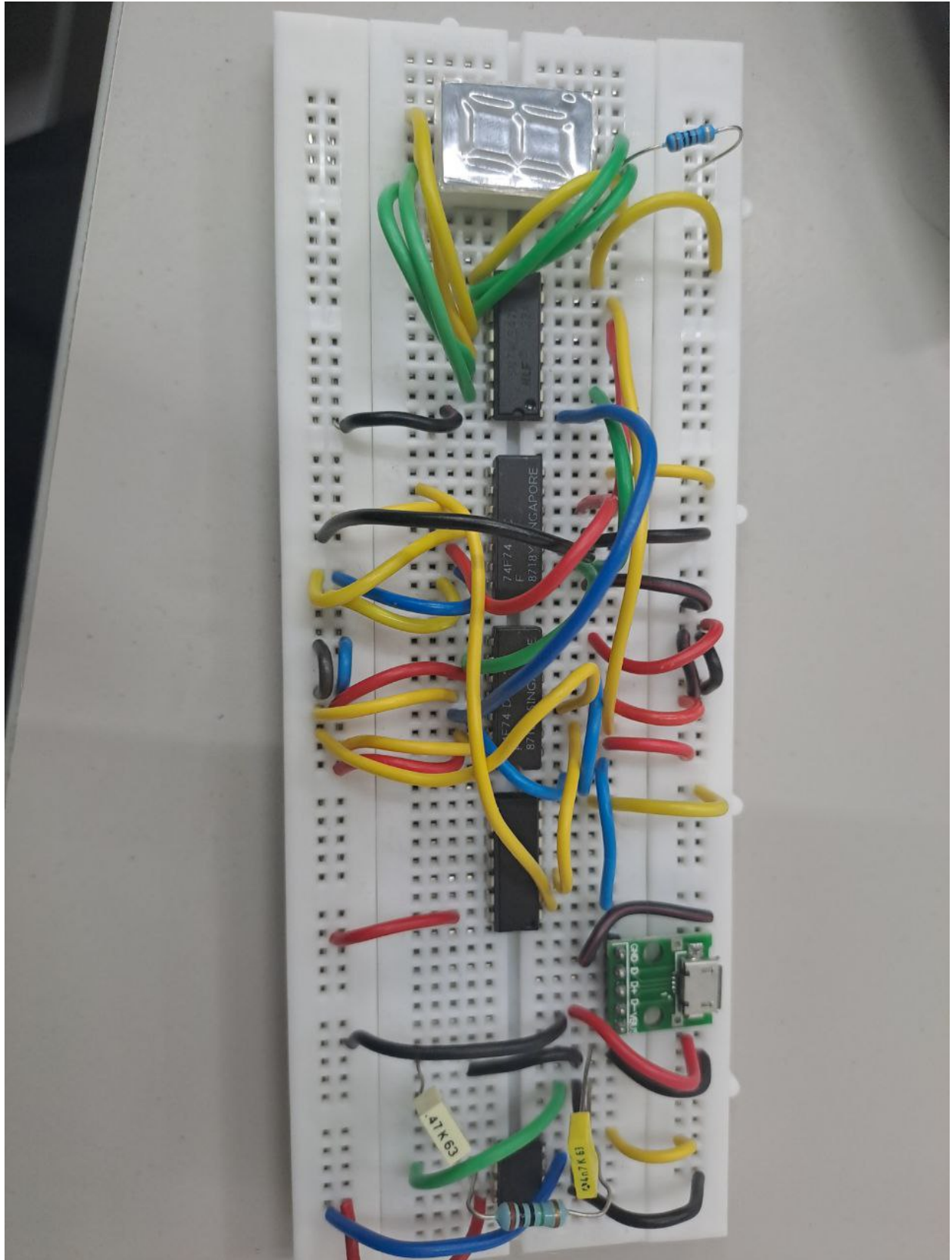


Figure 1: Circuit Board

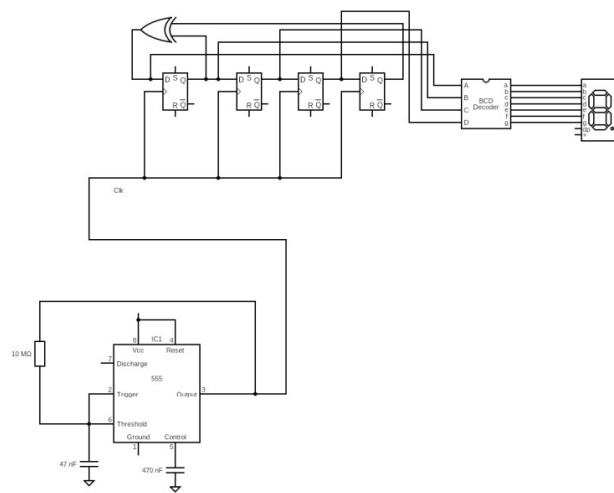


Figure 2: Block Diagram