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Lab Report 4

ECE 2031 L09

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Graphical user interface, application, chat or text message

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**Figure 1.** The state diagram of a finite state machine that rotates between Red, Green and Blue states. Each state shows what occurs on entry and the requirements to move to the succeeding state.

Table

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**Figure 2.**  The transition table of a finite state machine that rotates through states Red, Green, and Blue. The table shows all possible combinations of current state and inputs excluding the unused state (11)

Diagram, schematic

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![Background pattern

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**Figure 3.** Circuit Schematic implementing a finite state machine. Outputs red, green, and blue activate in a cycle continuously unless interrupted by an input of c or xmas in which blue stays active or red and green cycle respectively.

**Diagram

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**Figure 4.** Functional simulation waveform of Red, Green, Blue finite state machine with 4 inputs and 4 outputs. The input vector covers all possible input states to prove the correctness of the circuit.

A picture containing text, electronics

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**Figure 5.** The circuit implementation of a finite state machine where the next state is monitored by led lights found on the bottom right and top middle of the circuit.

**Diagram, schematic

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**Figure 6.** Circuit Schematic implementing a finite state machine. It shows each gate’s worst case propagation delay and the circuit’s worst possible delay of 132ns which runs through the upper path, through an inverter, 2 nand gates and a D flip-flop. The calculated maximum frequency was found to be 7.576MHz.