

COL215: Digital Logic and System Design

Special Laboratory Semester, AY 2021-22

Department of Computer Science & Engineering

Lab Assignment - 5

Creating Display Effects using 7-Segment Display

Learning Objective:

Learn (i) use of a pre-designed circuit (4-digit display, in this case) with PWM as a building block, (ii) a state machine to control the scrolling speed and effect

Specifications:

A 4-digit BCD input taken from the slider switches is to scroll from right to left at a pre-determined speed. But the intensity of the digit being displayed on the rightmost display should be minimum and that on the leftmost display should be maximum.

Details:

Design a state machine where every state controls a set of multiplexers so that the appropriate BCD digit from the switches is made available at the appropriate display. Also, you control the PWM for each digit. Control the speed of state transition to create a desired effect.