

EECS 3216

Winter 2021

LAB 5

REFERENE VALUE DEFINER

Lab Objective

The objective of the lab is to use FSM to model and design a practical reference value definer.

Introduction

Reference value definer is a common application in many control systems. It uses a push button to control the reference value. For example, if you want to set the air condition temperature, you will push a button, such that any push and release increases the refence value by 1. This part we cover already in the lecture. For this lab, there is another added component. If you want to advance rather quickly, you may hold the pushed button for a specific period of time, after that is will to automatically increases by a specific increment after a predefined period of time.

Specification

Design a reference value definer to do the following

1. SW0 on the board is used for reset.
2. SW1 is used to increment the reference value
3. Reference value is shown in decimal on two of the seven-segment display
4. The min is 0 and the max is 15, it circles back to zero after 15
5. The value is incremented by 1 for every push and release.
6. If you push and hold it for 2 seconds, it increments automatically every 0.5 second.

Bonus

10% bonus if you show the value in 0.5 increments on three 7-seg displays.

Marking

Video presentation (50%), the report (50%). For each the marks are 3, 2, and 1. For doing everything you were asked to, most of what you are asked to do, less than half, or none at all

The lab is due 11:59 pm March 21.