

ECE 372/3 Lab

Project 2

Pulse Width Modulation Using the OCx and RTI Interrupts

Objective:

To generate a waveform with constant offtime and decreasing ontime using RTI, and to generate a waveform with a constant frequency and decreasing duty cycle using OCx.

Tasks:

In this project, we are using an OCx interrupt to dim an LED from full brightness to off, in 1 second, and to full brightness again in 1 second. (Different than lab 7)!

Refer to Lab 7 for an explanation of OCx. Make sure to do the necessary changes.

Before you enable OCx, you are going to use RTI for a count down. When the program first runs, ask the user for an input between 0 and 9, and only accept valid inputs. Use that input as a count down. For an input of 5, a sample RTI waveform is shown in Fig 1 below:

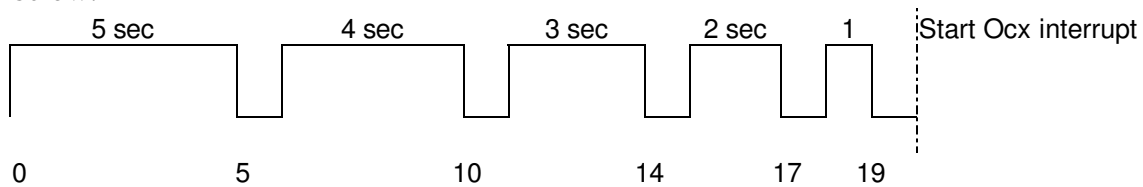


Fig. 1, RTI Sample Waveform

After the RTI part is done, the light should start dimming (for 1 sec) and then glowing again (for 1 sec).

Hints:

- Finish Lab 7 first.
- Finish each part and test it separately.
- Start early.