



University of British Columbia
Electrical and Computer Engineering
ELEC291/ELEC292

Lab 6 – 555 Timer/Capacitance Meter II

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Introduction

This is exactly the same as Lab #4 (for ELEC291 students), but instead of using the EFM8LB12, you must use a micro processor/controller that is not 8051 based.

For this lab you can work with a partner; only one submission is necessary on Canvas.

Laboratory

- 1) When used as an astable oscillator, the frequency output of a 555 timer is inversely proportional to the capacitance used in the circuit. If such frequency is measured using a microcomputer system, the capacitor value used in the timer circuit can be determined. Assemble using an actual 555 single timer, a capacitance **meter** that works in the range 1 nF to 1 uF. Use a processor that is not 8051 based and an LCD to measure and display the capacitance. Write the program of your capacitance **meter** using the C programming language. Demonstrate the working system to one of your lab TAs. For your reference, examples and instructions for the ATmega328P, MSP430G2553, PIC32MX130, LPC824, and STM32L051 microcontrollers are posted in Canvas. These processors are included with the Project #2 kit. Submit your source code and a picture of your working system to Canvas.