**COL215**

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Brightness Control

**September 12, 2019**

# Overview

This assignment involved use of Pmod to display ambient brightness on the seven segment display.

# Goals

1. **To extend the circuit of Assignment 6 to control brightness of LED displays based on the intensity of the ambient light.**
2. **To use light sensor module to sense the ambient light intensity.**

# Specifications

This assignment extends the circuit of the assignment 6. Here we have to use Pmod to sense ambient light and hence display the brightness on the seven segment display. The lights on the basys3 FPGA board changes with the ambient light.

# Description

## Assignment6 Usage:

We used the 1 Hz clock, 1KHz clock and the seven segment output display to display the numbers on the seven segment display.

## 3 MHz counter

We have made this clock using the same principle as in the clock of 1Hz and 1KHz. We used a variable which changes its value when the counter in it changes it to 31 each time.

## Communication module

We have made this using the clocks. We have divided it in three processes. In the first process we basically checked for the 1 Hz clock and then made a SDOcounter which increases its count to 15 and whenever it reaches 15 we made the output CS <= 1 and a variable temp to 0 which basically helped us to provide output. In the second process we assigned the variable value to the register. In the third process we output the register.

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