# ECE318 Design Project

# Spring, 2017

In this project you will work in teams of two (there is an odd number of students, so one person can work by themselves if they prefer, or there can be one team of 3 on a more complex project). The team will specify a digital system, design and simulate it, and synthesize the system on the Altera DE2 board.

## Project Objective

In this project you will practice the digital design, modeling, simulation, and implementation skills you have learned to implement a working system. You will start by specifying the system, and then decompose into modules, implement the modules, and integrate into a final system that you will demonstrate and explain in your presentation and report. Some design ideas are given below, but you may also propose an alternative system.

## Design Milestone Overview

Detailed descriptions of each milestone assignment will be posted on Nexus.

M1: Problem Definition Draft – due Monday, May 8 end of lab period

M2: Project Proposal – due Monday, May 15 at beginning of lab period

M3: Project Demo and Presentation – due Monday, May 29 at beginning of lab period

M4: Project Report - due Thursday, June 1 in class

## Project Ideas

Here are some examples of digital systems:

* Digital combination or card lock
* Digital alarm clock
* Virtual ATM
* Bowling score keeper
* Tennis score keeper
* Game with keyboard/mouse input (Read chapters 9 and 11 of the lab manual to think about projects with a mouse and the VGA screen).
* Traffic light system

### Simple Video Games

Some successful projects over the last few years have been based on implementing some older video games on the FPGA chip and using the keyboard and video interfaces that we have worked with in lab. You are free to use any of the logic blocks or modules that you have worked with in lab up to this time. There have been successful implementations of Pong, Snake, Tic-Tac-Toe and other games.