ECE 4680/668 (Embedded Computing)

Lab #1: Image display (remote learning version)

This first lab is designed to introduce the student to memory formatting of image data and the process of image display.

There are two images at the course website (http://www.cecas.clemson.edu/~ahoover/ece468) called bridge.ppm and retina.ppm. You are to write C-code to load and display these images on the screen of your computer.

The lab program must be written twice, once using X and once using Windows display code. The X version should be compiled using *gcc*, the Windows version should be compiled using *Microsoft Visual C*. The portion of the code that loads in the image can be identical. Neither program should need to be recompiled to select an image.

You may need to install one or two virtual machines (VMs) depending on your host O/S and access to MS Windows and linux. I recommend using VirtualBox (https://www.virtualbox.org/). Any versions of Linux or Windows should work. You will need Microsoft Visual Studio installed under Windows. Clemson CCIT licenses all versions for free downloading by students (https://ccit.clemson.edu/support/current-students/software-and-applications/individual-licenses/?id=3550&l=2).

Code for creating a window under both X and Windows is posted at the course website to get you started. I have also provided a link to documentation on an important display structure for the Windows code. Under linux, the *man* pages can be consulted for help on any X function. Under Windows there are help pages.

The lab programs do not need to handle events. A simple timed display of the image (e.g. for five seconds) or until the user "presses any key" is sufficient.

If possible, configure your screen for 16-bit display. If your hardware device driver(s) do not support 16-bit, then you may use 24-bit or 32-bit. All variations will be described during class.

This lab is due by the due date given at the course website. Grading will be determined via demonstration. The TA will arrange a time with you for remote demo.

You must also submit your C-code (as an attachment) to ece_assign@clemson.edu. Use as subject header ECE4680-1,#1 (or ECE6680-1,#1). This email is due by midnight of the due date.

Work for this lab must be completed by each individual student. If it is determined that a piece of work has been copied, all parties involved will receive zero credit. If it happens twice, the offending parties will fail the course. Please protect your work!