ECE 4680/668 (Embedded Computing)

Lab #1: Image display

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 (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 a computer in the Riggs 309 lab.

Each computer is running the X window system under linux. Each computer is also running a virtual machine (VM), with a Microsoft Windows system installed on it. The VM tool allows Windows programs to be executed in a virtual window under X/linux.

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 Studio*. The portion of the code that loads in the image can be identical. Neither program should need to be recompiled to select an image.

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. For additional help with either the X11 library or Win32 library, you can search the web for function descriptions and tutorials.

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.

The screens in the Riggs 309 lab are set to 16-bit visuals. Therefore the images must be displayed using 16-bit techniques. The X program should use 16-bit pixel values for both greyscale and color display. The Windows program should use a colormap for greyscale display, and your choice of either colormap or 16-bit pixel values for color display.

This lab is due by the due date given at the course website. Grading will be determined via demonstration. The lab TA will be available for demonstrations in the lab (Riggs 309) at the times posted at the course website. If you need to arrange an alternate demonstration time, work it out with the TA.

You must also submit your C-code canvas. The due date is posted on the course website.

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!