CMST 250, Hardware & Networking Fundamentals
Lab 1 – Setting up a homepage

PROJECT 1 Make a Blog
According to the General Lab Procedures handout, each student is required to submit lab reports online in a web page format. Past experience suggests one of the easiest ways to accomplish this is through the use of the Wordpress blog.

Wordpress is an open source content management system for the web. If you are interested in creating powerful websites easily, Wordpress is a great thing to learn. There are two separate Wordpress websites, Wordpress.com and Wordpress.org. The Wordpress.org website contains free software you can download and install on websites that you host, manage and control. Wordpress.com is a companion website that offers free hosting of the Wordpress platform for you. *Unless you already know a great deal about hosting your own website, you will want to stick with Wordpress.com*!

Visit Wordpress.com. Enter a new name for the blog website you would like to use for this course, then click the "Create Website" button. Enter an e-mail address, a username, and a password you would like to use for the blog. For simplicity, consider using the same name for the blog as the username you will log in with. At the bottom of the page, click on the "Create Blog" button under the free option.

If all goes well, you will have a new blog. After logging in, in the upper left corner, click "My Sites" to see a list of your blogs. Under the name of the blog you just created, click the "Dashboard" button. The dashboard is the backend that controls everything about how your blog looks, and the content you publish. To the left are the controls.

The control that will be most useful to you this semester is "Posts." The backbone of the Wordpress blog is the Post. It is a dynamically generated page that displays on the front page of the blog, with the most recent post first. As you create new posts, the older ones are pushed further down the page.

Don't confuse the "Post" with the "Page." You should only create a page if you have information that you want to always be available, such as a "contact information" page. In the past, some students have made new pages for each lab report – *don't do this*! It is very difficult for you to maintain, and hard for readers to follow. Just keep making new posts each time you need to submit a new lab report.

Under the "Posts" button, you will see a submenu with the button "Add New." Click it to make a new post. Every post should have a title, and some content. There are two editable fields for this purpose on the "add new" window. Make the title the name of the report you are creating. Something useful like the title of the lab such as "Lab 1 – Setting up a homepage" will do nicely. Go ahead, create this post and click "Save Draft" to save it for later. We will use it again at the end of this lab.

PROJECT 2 – Edit the Networking Wiki
What is a Wiki? If you can't explain it, do an internet search for an explanation of what a wiki is. We will be using a wiki for storing this course's lecture notes.

Visit the class wiki at http://ksunetworking.wikispaces.com/. Create a free account for yourself that can be used to edit the wiki information. When your account is created, let the instructor know so you can be added to the wiki as a content editor.

Login with your account, and add a computer networking word or phrase to the Glossary page. It can be anything Internet or networking related that you think might be useful to know. Please include a word or phrase along with a short definition.

Part of your participation score for the course will come from how much or little you contribute to the Networking Wiki throughout the semester.

PROJECT 3 – Join Diigo and the KSU Networking Group, share a webpage
Visit Diigo.com and create an account. Request permission to join the KSU Networking Diigo group found at: http://groups.diigo.com/group/ksu_networking. Locate one recent web article related to the subject of networking and/or the internet. Bookmark it and share it with the KSU-Networking group.

Part of your participation score for the course will come from how much or little you contribute to the Diigo group throughout the semester.

PROJECT 4 – Build a DC Motor
Now that all of the infrastructure is set up for the labs and the course, let's build something!

1) Take some magnet wire (the bronze/orangey coated stuff) and make a motor armature by winding around a marker pen about 15-20 times. Tie it together by making some additional wraps around the armature coil, leaving two ends sticking out about 1.5 inches on two opposite sides. Your finished coil should look like Figure 1.

Figure 1- Completed armature

2) Using sandpaper or the blade of a knife or scissors, completely scrape the insulation coating from one of the armature ends that is sticking out (it should show shiny, bare copper). On the other end, remove the insulation coating from only one side, and leave the coating on the other side (Figure 2). As your motor spins, this will allow your motor armature to conduct electricity through half of a rotation, and shut off electricity through the other half rotation. Think about this question: Why is it important for the electricity to shut off for half a rotation?
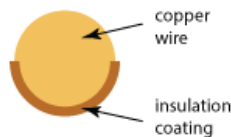

Figure 2 – Cross section of wire with coating removed

3) Create mounts for your motor out of two paper clips. Bend the paper clip so it forms the shape of an "L". On the long end of the "L," make another small "L" shape that will hold one side of the motor armature. When finished, it should look like Figure 3. Make two of these for each side of your motor.

Figure 3 – Paper clip motor mount

4) Tape your two motor mount paper clips on opposite sides of a Styrofoam cup. Arrange them so your motor armature coil can rest on them and turn freely. Tape a small magnet beneath your armature coil. Your motor should now look like Figure 4.
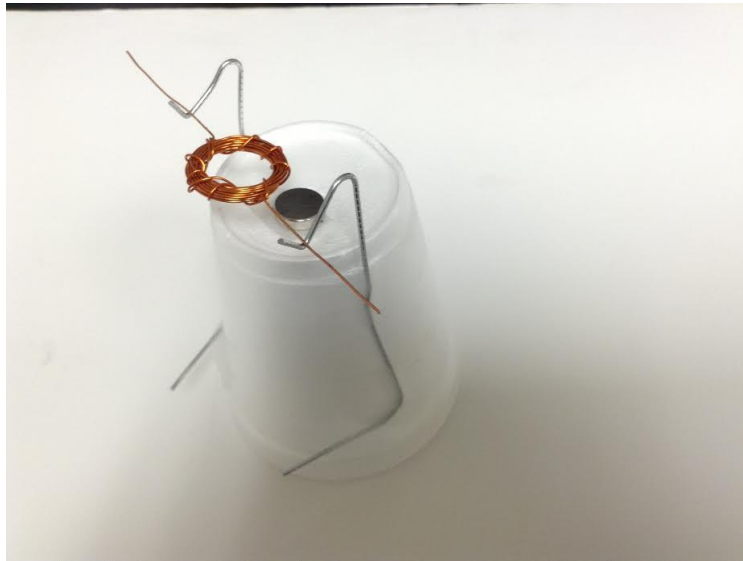
Figure 4

5) Connect copper wires to each of the paperclip leads with alligator clips at the bottom of the cup. Connect the other ends of the wires to the positive and negative ends of a battery using tape. When everything is connected, give your armature a tap. If everything is working correctly, it should spin and keep spinning. You may need to double check electrical connections and adjust the balance of your armature coil to get things working.
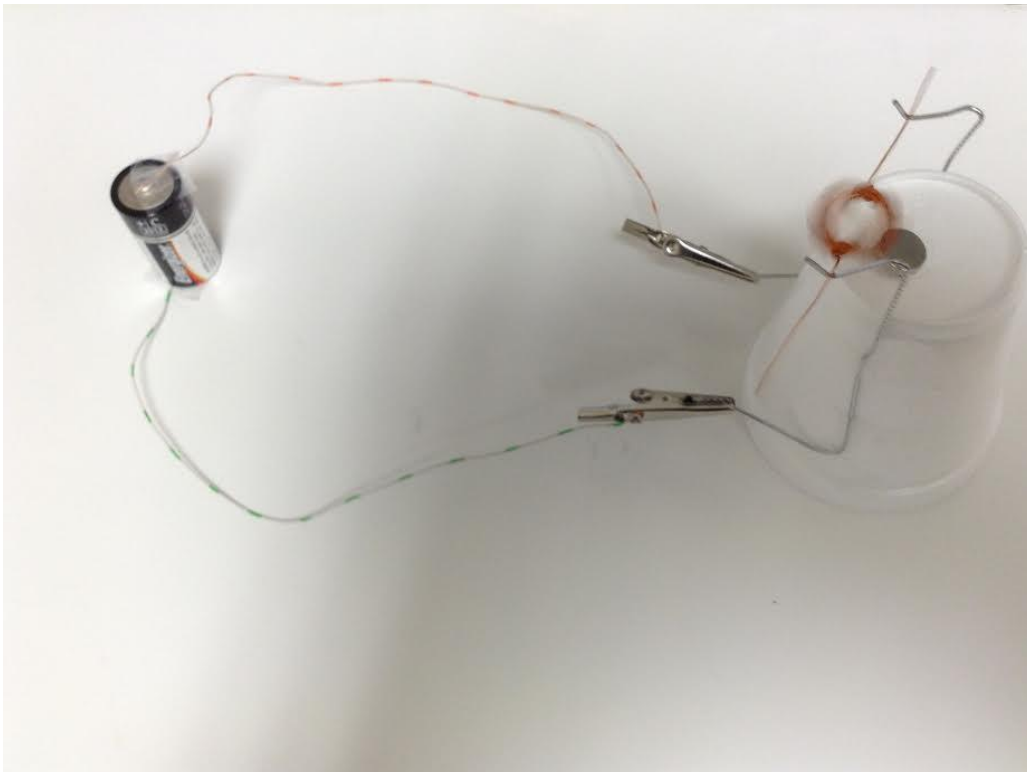
What problems (if any) did you have getting your motor to work? What did you do to fix the problems?

PROJECT 5 – Write a Lab Report for this Lab

Each week our lab meets, you will need to make a written lab report for the projects and activities of that particular lab. These need to be published on the web and the relevant URL address submitted to K-State Online for grading.

Use the following format for each lab report:

Objectives: *A brief statement of your objectives (not mine), written in your own words.*

Equipment list: *Include equipment descriptions and software.*

Notes and Observations: *Identify the procedures followed and observations made along the way. Compare the results with what was expected. Include handwritten notes (scan these as images), observations, and answers from the lab.*

Diagrams, flowcharts, and figures: *When applicable include diagrams. Refer to diagrams in your documentation by figure number.*

References: *Cite any reference material that was used while performing the exercise.*

Questions: *Include questions from the laboratory handout and their answers.*

Conclusions: *This section should summarize your accomplishments and observations, and should reflect the degree to which the experiment succeeded. A brief discussion of significant errors, troubleshooting steps taken, and necessary revisions should be included. This is the part of the report where you demonstrate what you have learned, and is therefore the most important!*

Your writing should reflect that of a college level student. ***Do not write to the professor as your only audience***. Instead, ***you should be writing for a potential global audience*** of anyone interested learning more about networking and internet technologies. It is important that you don't assume the reader has experienced the lab you have just experienced. The reader should be able to read your report and make sense of it without having completed the actual lab. This means you will have to do things like include any questions you are answering, describe with some detail the activities and outcomes you achieved, and so forth. If it helps, envision that a good friend or relative who is knowledgeable about computers will be reading your report. In fact, I would recommend that you invite any such friends or relatives to see what you have been learning, and leave you comments and feedback. What a waste to do all of this work only to have it read by one person just for a grade!

In your report you can describe any difficulties you encountered, things you observed, processes you used and things you learned. You may want to prepare your lab report in a word processor such as MS Word, then cut and paste into your web page templates or blog posts so you can use tools like spell checking and grammar checking. I am not overly strict with regards to writing, but I do expect to see words spelled correctly and complete sentences that make sense. ***Points will be deducted for overly careless or hard to comprehend writing.***

I have posted samples of previous semester lab reports so you may get an idea of the quality of writing I am looking for. You may view the samples on K-State Online under `Files-> Modules-> Labs-> LabExamples`. This is a college course and I would like to see college level writing in these reports.

Also, I challenge you to experiment with formatting your pages for color, fonts, columns, etc. during the semester. The easier it is for me to read and access your work, the happier I will be while I'm grading! Trust me, you want a happy grader.

When you have finished composing your lab report, be sure to publish it on the web and submit the page URL to KSOL assignment Lab 01.

Good luck, and I look forward to reading about your experiences in the lab.