

ECE4007 Project Summary

Project Title	Shelter Helpers
Team Members (names and majors)	Chris A. Higginbotham – Electrical Engineering
	John Lewis – Computer Engineering
	Nikhail Singh – Electrical Engineering
Advisor / Section	Dr. Whit Smith / L01
Semester	2009 Spring
Project Abstract (250-300 words)	<p>The Shelter Helpers provided technology support, upgrades, and implementation to the Atlanta Day Shelter for Women and Children (ADSWC) this Spring 2009 semester for the humanitarian benefits and for the personal consulting experience. The ADSWC needed help developing their website, integrating donation software and with internal networking and security issues. This project was a continuation of last Fall 2008 semester's work started by a previous senior design group.</p> <p>This semester, the Shelter Helpers built upon the last group's work by repairing several broken PC's, continuing maintenance and repairs on the network, and installing and implementing the Donor Perfect software that was purchased as a result of the previous group's research. In addition, several new tasks were performed, such as setting up a new workstation to manage their volunteer and donation check-ins, developing a security badge system for clients and staff, researching and implementing the Volgistics software used to store and manage volunteer information, and creating a singular database in which all donor and volunteer information can be stored.</p> <p>The costs associated with the bar code scanner totaled \$167. In order to transfer data from Volgistics to Donor Perfect and import module was purchased for \$595 with a \$100 recurring yearly fee. The CAT5E cabling and the COAX cabling constituted a total cost of \$253. The Volgistics volunteer software costs \$130 per month with no initial installation charge. Consequently, the total cost was \$5850 with a \$1660 per year recurring cost. As far as labor was concerned, there was an average of 3.5 hours worked per day per student for 27 days. The total hours worked summed up to 283 hours.</p> <p>The unfinished work will be completed by either next semester's senior design group or by the Georgia Tech Association of Women Engineers (WECE).</p>

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List codes and standards that significantly affect your project. Briefly describe how they influenced your design.	<ul style="list-style-type: none"> - Microsoft Windows XP requirements - Layer-3 switching capabilities on switch. - The donation receipts must conform to 501C Federal guidelines. - The barcode scanner must be 2010 GS1 Sunrise compliant. - Online software must be compatible with several Internet browsers. - Javelin security camera monitoring equipment.
List at least two significant realistic design constraints that applied to your project. Briefly describe how they affected your design.	<p>Budgetary constraints existed due to the nature of the non-profit organization. Since this was not a revenue and profit-generating organization, the money brought in for technology needs was smaller than in other industry-related businesses. The total budget for this semester was \$7356. Normally, an experienced IT person will cost between \$50-\$75/hour; however, the budget estimate used a \$20/ hour cost. The labor portion of the budget, \$5670, was not paid, as the labor was done on a volunteer basis. Due to this constraint, a tradeoff had to be made, which required the ADSWC to request volunteer help for their technological needs. The Shelter Helper team members were volunteering their time as part of their senior design project to help the ADSWC.</p> <p>The shelter already has fully functional software, hardware, and networking; therefore, the Shelter Helpers were charged with maintaining and upgrading this technology.</p> <p>Another constraint existed regarding repairing the existing computer equipment in use at the shelter. Whenever a PC, printer, switch, or fax machine breaks down, there was no money in the budget to purchase a new item to replace it. Instead, the Shelter Helpers spent more time trying to repair the broken equipment.</p>
Briefly explain two significant trade-offs considered in your design, including options considered and the solution chosen.	<p>A free malware protection service, Malwarebytes, was used to protect the shelter PC's from spyware. However, this program did not run actively on the PC's and must be activated manually. The commercial version does run actively, but came with a license fee of \$25 in addition to an annual upkeep fee. We elected to use the free version and will leave the decision to upgrade to the next group.</p> <p>Another trade-off was created by budget restrictions. Due to limited funds, higher quality and more durable hardware could not be purchased, and we had to settle for purchasing lower quality equipment.</p>
Briefly describe the computing aspects of your projects, specifically identifying hardware-software tradeoffs, interfaces, and/or interactions. <i>Complete if applicable; required if team includes CmpE majors.</i>	<p>John Lewis, the computer engineering member of the Shelter Helpers, implemented the new Donor Perfect software. He also ensured that several of the computers in the shelter have access to it.</p> <p>Nikhail Singh, one of the electrical engineering members of the team, redesigned and improved the existing web site. He added volunteer functionality to the website by integrating the Volgistics volunteer software. The volunteer data in Volgistics was also integrated with the Donor Perfect database so that all the information was in one location.</p> <p>Chris Higginbotham, the other electrical engineering member of the team, upgraded the software on all of the 55 PC's in the shelter. He also managed the active directory, DNS, and DHCP functionality on the servers.</p>