

## **CSE293 Computer Science & Engineering Design Laboratory**

### **Atari 800 Renovation and Extension**

I have in my possession a vintage Atari 800 computer, one of the first PCs, with various peripheral devices (cassette deck for loading, 300 baud modem, serial/parallel interface, etc.), assembler editor and basic editor, and a number of game cartridges (Space Invaders, Missile Command, and Star Raiders). However, at this time the Atari does not appear to function. The challenge for the semester is to attempt to renovate, repair, extend, etc., the computer to get it working again. This project gives you the opportunity to work on vintage 1978 computer technology that at the time was state of the art in terms of computer gaming. In addition to repairing the system, there are a number of other challenges that you can attack:

- Integration of a modern game controller for a PC. The Atari 800 utilizes a joy stick as a game controller, with a single firing button. There are many new joy sticks, and also other game controllers. The ability to integrate one of these newer controllers would be an interesting exercise, since the joy sticks that I have are non-responsive at times.
- Integration of a zip disk or another modern disk drive device. I have a zip disk that is available for this purpose. This may require you to write a device driver.
- Integration via the serial or parallel port to a laser printer or ink-jet printer.
- Writing a new game for the Atari 800 using either assembly language or basic. I have two books to support this task: Atari Basic text and a 6502 assembly language text.

I believe that this project is well suited to a team of 3-4 students. To find information about Atari, I would suggest using google or your favorite search engine. Searching on "Atari" yielded 1.6 million hits. One of critical importance is [www.atari.org](http://www.atari.org) which has many different features, including emulators for Atari games. Searching on "Atari 800" yielded a mere 22000 hits.

Overall, I am willing to finance this project on the order of \$100.00 for the semester. Note that there is a wide range of different Atari products on sale at Ebay ([www.ebay.com](http://www.ebay.com)). In fact, when I searched for "Atari 800" on Ebay, a total of 47 items were found. I found the entire Atari 800 for sale (\$45), one with drives, CPM, and peripherals (\$30); all other items on Ebay cost less than \$30.

The intent of the major design experience is to have you work on a real world project. Thus, as part of this course, you will be required to consider the following realistic constraints and their impact and effect on your project: economic, environmental, sustainability, manufacturability, ethical, health & safety, social, and political. In a software project, economic issues are related to the cost of the software, which you can try to estimate during the semester, and at the end of the semester, you can give an estimate of the retail cost.

Remember, all of the projects require you to utilize UML for design and documentation. In addition to our use of this equipment in the course, we also intend to utilize the projects as part of demonstrations at the various open houses that are held at UConn to recruit high-school juniors/seniors as college freshman.

As a major design experience, you will be asked to help assess the way that this course meets the objectives within our CSE programs. Specifically, at periodic times during the semester you will be queried for input. This will include which courses were most useful and critical for this course, and for each of those courses, which topics were most relevant. At the end of the semester, you will be solicited for suggestions for improvement.