The Oxygen Kiosk Project was developed to further pervasive computing by introducing informational and assistive kiosks to various high-traffic locations. The original kiosks were designed for CSAIL, and are installed at various points throughout the Stata Center, the most prominent located near the Gates Tower elevators on the ground level. These kiosks implement a small set of features to serve both visitors and graduate students, from maps and directories to events calendars and EECS promotional slideshows. From the perspective of Project Oxygen and the Kiosk Project, these first kiosks were early-stage prototypes designed to explore the concept and the problems involved in bringing it to fruition.

This latest stage of the project was largely a success, and the kiosks have now seen thousands of usages by MIT affiliate and visitor alike. Having proven the concept, we are now being commissioned by the EECS department to develop a similar kiosk to use as a centerpiece greeting passers-by outside the Grier Room.

The overall project goal is to design and deliver the kiosk to the department, and to assist in its installation and maintenance. The hardware platform chosen for the project is a PowerMac G5 and a 30-inch touchscreen-enabled Cinema Display. Since this platform is significantly different than ones in the past, which were less powerful machines with two 17-inch displays, we will need to redesign an interface that takes advantage of this new platform. In doing so, we will explore new methods of content delivery, content presentation, and user input. Since the Kiosk Project is the outward-facing component of Oxygen, we will also try to integrate the latest Oxygen technologies into the system.

The final kiosk will need to serve two purposes. In idle mode, the kiosk will function primarily as a digital billboard, streaming slideshows, animations, and other video content to passers-by. To this end, we will need to develop both static content and dynamic content-retrievers that automatically fetch information and compile it into presentations. In user mode, the kiosk will function as an application, responding to the needs of individual users. In this setting, the kiosk must handle the basic tasks in which people passing by might be interested. For new graduate students, the system should provide directories, maps, bios, and introductory information. For visitors, it may offer photo, audio or video messaging, event highlights, and points of interest. And for the casual passer-by, the system can provide basic web-browsing, e-mail, messaging, weather and news. We have also considered incorporating a system to deliver live or recorded lecture broadcasts.
As a single-user application, the kiosk interface presents many unique challenges to the designer. There is the issue of user privacy in a public space. We may explore other methods of user verification besides the traditional password-login model, perhaps face or voice recognition. There is the issue of the general user input interface. Most applications are not designed to be driven by a touchscreen. Ones that have been designed for touch-sensitive displays were made to be operated via a stylus and not by finger. The Kiosk Project has explored some aspects of this in the past, but solutions were mainly focused on developing larger interface components that were easier targets for fingers. We will continue to develop solutions for this mode of input, as well as investigate other possible modes that may be better adapted for controlling applications in the high-resolution environment.

In addition to designing a user-facing interface, we will also be constructing a system by which less technical department staff will be able to maintain and adjust the system. This interface will allow the kiosk’s content and functionality to be updated without our personal intervention.

As a member of the Kiosk Project, my responsibilities are the design and implementation of the kiosk system described above. I will be working directly under graduate student Max Van Kleek, and the two of us will be responsible for fusing the demands of the department, the technology of Oxygen, and some innovation to create the final product. I will begin by assessing the many input mechanisms and software interfaces that have been used in the past to determine a direction from which to approach the design. Meanwhile, we will also be determining, in conjunction with the department, what features are feasible to include in the final system. As this planning is being completed, I will be developing prototypes to try out new concepts and approaches. When the requirements and specifications have been finalized, Max and I will code and test the interface, and finally install it.

The project will give me an opportunity to practice user interface design and implementation, a field in which I am very interested. Aside from conventional software design, I will be able to experiment with new interfaces and input methods. The project provides many unique challenges from which I can learn a lot about solving real-world design problems. In addition, I will be getting much exposure to the cutting-edge technology in development at the various groups of CSAIL.