

Project Background and Purpose

In 1998 and 1999 NTG Clarity developed a state-of-the-art In-Mall Kiosk Information System (IMKIS) for a major property management firm that would link to the Internet and sell and promote products both at a mall and worldwide. The system would be housed on a central server and information would be selectively downloaded to the kiosks (located in the malls) or to the Internet. Up to this time, the kiosk was a small rugged standalone structure, containing computers, used to provide an alternative way for customers to become aware of news, information and services in a mall. In the NTG Clarity implementation, the kiosk significantly expanded the reach it would afford the retailers. The kiosk would be linked to the Internet in a secure fashion to allow access to the goods and services provided by the mall's retailers. At the same time, a customer at a Web browser at the other end of the world would be able to purchase goods from any store in the mall.

Main Systems:

The main components of the Kiosk application were a front-end mall kiosk system and a back-end information maintenance system.

Front End: Mall Kiosk:

An easy user interface was provided that used a multimedia approach and touch screen. It consisted of the following subsystems.

- **Advertisement Engine:** This subsystem displays advertisements when the kiosk is idle and when the user goes from one screen to another. These advertisements could be commercial, community and event oriented announcements. These advertisements could be from any source (supplier, tenant, community agency or any generic advertiser).
- **Search Engine:** This subsystem provides the necessary interface to allow patrons to search for information about the tenants (shops) and their products. The kiosk has the capability to display all shops and/or goods information alphabetically or by category.
- **Information Engine:** This subsystem provides the requested information dynamically with multimedia capabilities. The information consists of tenant's details as well as the products and /or services offered by them.
- **Shop Locator:** This subsystem provides a facility to display where a tenant is located.
- **Contact Facilitator:** This subsystem provides a facility to contact via a hands-free phone a shop's manager as well as the attendant of the customer information service booth.
- **Web Browser:** The subsystem provides access to the World Wide Web to view the mall's Web site as well as all tenants' Web sites.
- **Help Engine:** This subsystem offers context sensitive help to guide patrons to a pleasant and worry-free experience with the kiosk.
- **Gift Certificate Generator:** This subsystem provides a means by which patrons can buy gift certificates with their credit and/or debit card.
- **In-Mall Server:** This subsystem holds and manages all the information used by the kiosk. It is also a part of a replication subsystem that will provide transparent synchronization of the information between the front and back end systems.

Back End: Information Systems Maintenance

- Users are able to update tenants' information.
- Users are able to update product information.
- Users are also able to update the advertisements (commercial, community and event announcements).
- Users can access statistics about the kiosk's usage.
- A replication subsystem provides the mechanism too synchronize the mall's information stores with that of the central server.

An innovative enhancement was the development of software to assist the kiosk user to find a particular store within the mall. Software on the kiosk's computer displayed a map of the mall on the screen and NTG Clarity proprietary Locate-It technology was used to allow the user to select a store or other location on the map. Map traversal algorithms were provided to show the user the most convenient route to the desired location even if these routes involved more than one floor.

Accomplishments and Results:

The NTG Clarity In-Mall Kiosk Information System has been successfully implemented in a number of malls across Canada and has expanded the capability of retailers to sell their products and provide improved services to their remote customers.