The Project Voyager Personal Shopping Assistant:
Bringing Web Services Into the Supermarket

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Web Services for a Ubiquitously Networked World

Project Voyager uses wirelessly networked mobile devices to create Personal Shopping Assistants that delivers compelling web services to customers in a supermarket. Our research explores how to associate "virtual" services, such as personalized discounts, a **recipe finder**, a **product recommendation agent**, and **mobile point of sales** with products in a store. As such, Project Voyager aspires to build an "Internet Presence" for people, places, and things--thus building a bridge between the virtual and physical worlds we inhabit.

Figure 1: The Voyager Personal Shopping Assistant that provides customers with a myriad of "virtual" services, including personalized discounts, recipes, nutritional information, and a product recommendation agent.

Customers use the system by scanning in items in their shopping baskets. Once an item is scanned in, the Voyager application looks up information about that product on the Internet and returns it to the user. Additionally, when a shopper is ready to check out, the system automatically submits the customer's shopping basket to the supermarket's point of sale system. Shoppers are thus able to avoid long checkout lines, while the grocery store is able to save on overhead costs by reducing the number of needed cashiers.

The Voyager PSA: Bringing Web Services Into Your Local Supermarket

Working with the **Royal Ahold**--the parent company of the Stop & Shop supermarket chain—**Kraft Corporation**, **Symbol Technologies**, **Motorola**, and **Microsoft Corporation**, Project Voyager has built a Personal Shopping Assistant (PSA) that integrates various web services to offer shoppers a new shopping experience. Shoppers will receive a customized Pocket PC PDA

as they enter the store. The PDA will provide shoppers with access to services such as mobile point of sale and self-checkout, a personalized recipe recommendation service, personalized discounts, and context-dependent product suggestions.

The PSA system is built upon an infrastructure where every product in the store will have an "Internet presence." Thus, consumers are able, through the PSA, to access useful and valuable data such as recipes, discounts, and nutrition information that is otherwise difficult to obtain while the shopper is inside the store. As such, Project Voyager will enable Media Laboratory to evaluate the PSA's impact on consumers, as well as to provide a very public demonstration as to how a web-based platform can be used to aggregate different backend services to build a useful consumer-based shopping application.

Voyager's History: Building Location-Based Services and Beyond

Figure 2 The Voyager MIT Campus Guide, which helps visitors find their way around the MIT Campus.

Project Voyager began as a research endeavor to explore building collaborative, context-aware mobile guides. During the first five months after Project Voyager started, we built two prototypes: a location-aware guide of the MIT Campus, and a location-aware shopping assistant for the Cambridge-Boston area.

The MIT Campus Guide delivers services to users such as an audio narration at certain points of interest, menus at campus dining spots, and times of lectures at popular lecture halls. The tour is GPS-activated; specific locations were tagged with GPS coordinates and mapped to services most relevant to the user.

DealFinder, Voyager's second prototype, is aimed towards shoppers looking for deals, taking location into context. As such, users can search for deals—for example, a gas station—based on their position. Like the Campus Guide, DealFinder uses also GPS to detect the user's position.