

**To offer visitors a means by which to learn about the 130 or so projects being pursued at the Media Lab at any given time, RFID-enabled Samsung plasma touch-screen displays were installed throughout the building.**

By Mary Catherine O'Connor

Aug. 3, 2010—When the new home of the [MIT Media Lab](#)—an imposing glass-and metal-encased structure designed by Japanese architect Fumihiko Maki—opened in late 2009, the directors of this innovation-focused lab wanted the new building's transparent look to extend into the work of its occupants.

"You can stand in some places and see into every lab in the building," says Andrew Lippman, the Media Lab's associate director. "So by its very design, it is inherently open. You can see everything. But you can't see the theory. You can't see what people are thinking about [inside the lab], or what people were thinking yesterday."



A Media Lab researcher uses an RFID tag to access one of the facility's touch screens.

To bring that thinking to the fore, and to give the Media Lab's visitors a means to learn about the 130 or so projects being pursued at the facility at any particular time, 30 large RFID-enabled [Samsung](#) plasma touch-screen displays were installed throughout the building.

Attached to each touch screen console is a [ThingM](#) antenna, linked to a ThingMagic EPC Gen 2 (ISO 18000-6c) Vega RFID reader mounted behind the screen. Each reader is controlled by a dedicated PC that, in turn, is networked to a powerful software platform developed by the Media Lab.

This software, according to the Media Lab, acts as the brains behind the system. A visitor can be issued an RFID badge that includes an EPC Gen 2 passive ultrahigh-frequency (UHF) RFID inlay. That individual can then use a kiosk near the lab's entrance with an embedded Vega reader, in order to create a personal profile that includes the user's name and company, the tag ID number and a headshot, taken by a camera built into the kiosk. The visitor also creates a login name and a password for use once the visit is over.

A visitor could walk up to any of the touch screens and call up a map of the facility, or find out where a specific employee's office is located, or learn about any of the research projects currently being undertaken at the lab (presently, there are research groups doing everything from using computers to understand how children learn, to studying how intelligent neurotechnologies might repair pathology). But if he or she approaches a touch screen while carrying

an RFID badge, the screen's RFID reader will pick up the tag's ID number and forward it to the software.

The software associates and saves any information called up on the touch screen with that visitor's profile, so that at the end of that person's time at the lab, a digital map has been made that shows the history of where he or she went within the facility, as well as what information that individual accessed via the touch screens. What's more, whenever more than one person carrying a badge stands in front and within read range of any monitor, the names and photos of all badge-holders are displayed on the screen, as well as some information about those visitors, such as the companies for which they work, or research projects they've already read about at other monitors.

"The only thing you need to carry around is your badge," says Yael Maguire, a cofounder of ThingMagic, which helped the Media Lab develop the system, and which is no stranger to the lab. "You don't need to download some smart-phone apps or anything to collect the information." Maguire and his four ThingMagic cofounders are all MIT alumni, and studied at the Media Lab before launching their company 10 years ago. In fact, Nicholas Negroponte, the lab's chairman emeritus (as well as the founder and chairman of the [One Laptop per Child](#) nonprofit association) was an early funder of the company (see [Cisco Backs ThingMagic](#)).

Upon leaving the lab, a visitor can access these digital bread crumbs remotely by logging in to the [Media Lab's Web site](#), using the login name and password he or she set up at the kiosk. And on each subsequent visit to the lab, any interactions that visitor has with the monitors will be added to the existing data, as long as he or she is carrying the RFID tag issued during that individual's initial visit.

"The idea is to make the lab as transparent and accessible as possible," Lippman states. The Media Lab wants to make the ideas being developed and researched at its facility "as accessible as the physical artifacts" in the building, he says, rather than keeping information locked up in information silos.

"We used to ask, 'What are computers good for in regular life?'" Lippman says. After the dawn of the Internet, he adds, people began spending an increasing amount of time in cyberspace, but no one had figured out a way for people in the same building to share information that was better than a blackboard. "Now, people want to live more in the real space, rather than in cyberspace, and this [RFID system] gives people a way to do that."

"If you think of Facebook or Twitter, this is like a microcosm of that," Maguire explains, "but one where the building itself is what is providing the information."

But unlike social networks such as Facebook, or even physical blackboards, the Media Lab's system, at present, only facilitates one-way information exchange. In other words, visitors can collect information from the monitors, but not input data, such as questions or images. However, Lippman says, the lab does plan to build out the system's capabilities in the future, to include a means by which two-way

communication—either through the monitors, or via Web-based networks, such as Twitter—will be feasible. Longer-term plans for the system include adding additional antennas to provide more granular location data—say, for instance, adding antennas to doorways to track which specific labs the visitors enter. Moreover, Lippman says, plans are currently in the works to incorporate video conferencing into the system.

The system debuted on May 25, during the Diagonal Thinking symposium that the Media Lab held to celebrate its move into the new building. For now, only staff members and researchers at the lab carry RFID-enabled identification badges (these are semi-passive EPC Gen 2 tags, manufactured by [PowerID](#), that resemble credit cards because they are encased in a rugged plastic housing). Within weeks, Lippman says, once the kiosk used to initiate user profiles has been fully tested and vetted, the Media Lab will begin issuing paper badges to visitors that contain EPC Gen 2 inlays converted by [William Frick & Co.](#)

"This makes me think of bigger visual social networks," Maguire says. "What if you did this in an airport, where I could wave my boarding pass [by a reader] and the system knows I like Odwalla drinks and tells me where I can get one?"

RFID has been used in applications similar to the Media Lab's deployment for a number of years. San Jose's [The Tech Museum](#), for example, issues tags to visitors for use in creating personal Web sites at which, after their visit, they can view information regarding the exhibits with which they interacted (see [RFID Works Like a Charm at The Tech](#)).

ThingMagic publicized its contribution to the Media Lab's smart-display system as part of its [100 Uses of RFID blog](#). In part to celebrate its 10th anniversary, as well as spread awareness of the many ways in which RFID is being used, the company began highlighting a different RFID application on its Web site every business day on July 19, and will continue to do so until Dec. 31.