



PlaceLab's cabinets include hidden cameras, movement detectors, microphones, and other sensors.

SENSORS

The Digital Apartment

G LEARNING HARDWOOD FLOORS. Recessed lighting. Computers gathering data on every flick of a switch, flush of a toilet, or opening of a cabinet. It's all in an apartment nearing completion in Cambridge, MA, that doubles as PlaceLab, whose creators say it's the world's most elaborate residential laboratory for studying how people interact with their homes. Packed with discreetly installed sensors, microphones, and cameras, it's a lab for prototypes and testing health-care systems, smart appliances, the latest environmental controls, and whatever else companies and academics want to study.

The 90-square-meter space is a joint project of MIT and Tiax of Cambridge, MA. While academic labs and companies like Intel, Philips, and Microsoft have been showing off smart-home demos for years, the leaders of the Cambridge project say this is the first one that's both heavily sensor-riddled and also an actual apartment where people will live, albeit as voluntary test subjects for periods of about two weeks. "Nobody has built a scientific instrument like this, to measure the complex interaction of people and technology," says Kent Larson, an architect and director of the MIT research consortium involved in the project. "You can only go so far in an academic or corporate research lab."

First up: a study of what people actually do about diet and exercise, compared to what they say they do. Key

objectives down the road include the testing and development of technologies that remind people to make healthier decisions. Such reminders could be anything from audio messages to changes in lighting hue or intensity.

Tiax even hopes to evaluate the sensing technologies themselves, says company president Kenan Sahin. Everyone recognizes that an aging population will need better monitoring (see "Monitoring Mom," TR July/August 2003). What's not so clear is which technologies—wearable radio-frequency identification bracelets,



A partial PlaceLab floor plan shows sensor coverage.

cameras, or sensors on dishes, medicine bottles, and cabinet doors—are most practical. Tiax hopes to provide manufacturers hard data on which systems function well and might be easily packaged and sold to builders. "We want to know how to embed them into the infrastructure of the home affordably," Sahin says. "The home is a system; people interact with and are part of that system." This much is clear already: there will be plenty of ways to watch how that interaction unfolds. **David Talbot**

ELECTRONICS

Networking Your Gadgets

I t sounds simple enough. Display your digital photos on the TV, or play songs stored on your PC through your stereo. Don't bother trying, though, because the typical computers, DVD and MP3 players, cameras, and televisions that pervade millions of homes can't all communicate with one another. After years of industry promises, however, that could be about to change. The first products that will allow for easy networking of a wide range of gadgets could arrive on store shelves as early as this holiday season.

The main roadblock was cleared this spring, when consumer electronics, chip, and computer makers agreed to a new common set of standards. Now, manufacturers are using those standards to build next-generation products that exchange songs, video, and photos with each other, via either wired or wireless local networks. While certain high-end products can already do this, "we're trying to make it more plug-and-play for mainstream consumers," says Bob Gregory, director of initiatives planning at Intel and a board member of an industry consortium of more than 100 companies—including Microsoft, Sony, and Hewlett-Packard—that established the new standards. At first, gadgets will exchange data via special adaptors, though manufacturers will next make devices with the networking capability built in.

"It's a great first step" toward expanding the home network beyond just PCs, says Mike Wolf, an analyst with In-Stat/MDR, a market research firm in Scottsdale, AZ. "Eliminating the lack of interoperability is a great hurdle they've overcome," he says. Within the next year or two, instead of being stuck in front of a computer looking at digital photos, you could find yourself on the living room couch with the photos on a big-screen TV. **Corie Lok**

IMAGES COURTESY OF THE MIT HOUSE_IN CONSORTIUM AND TIAx