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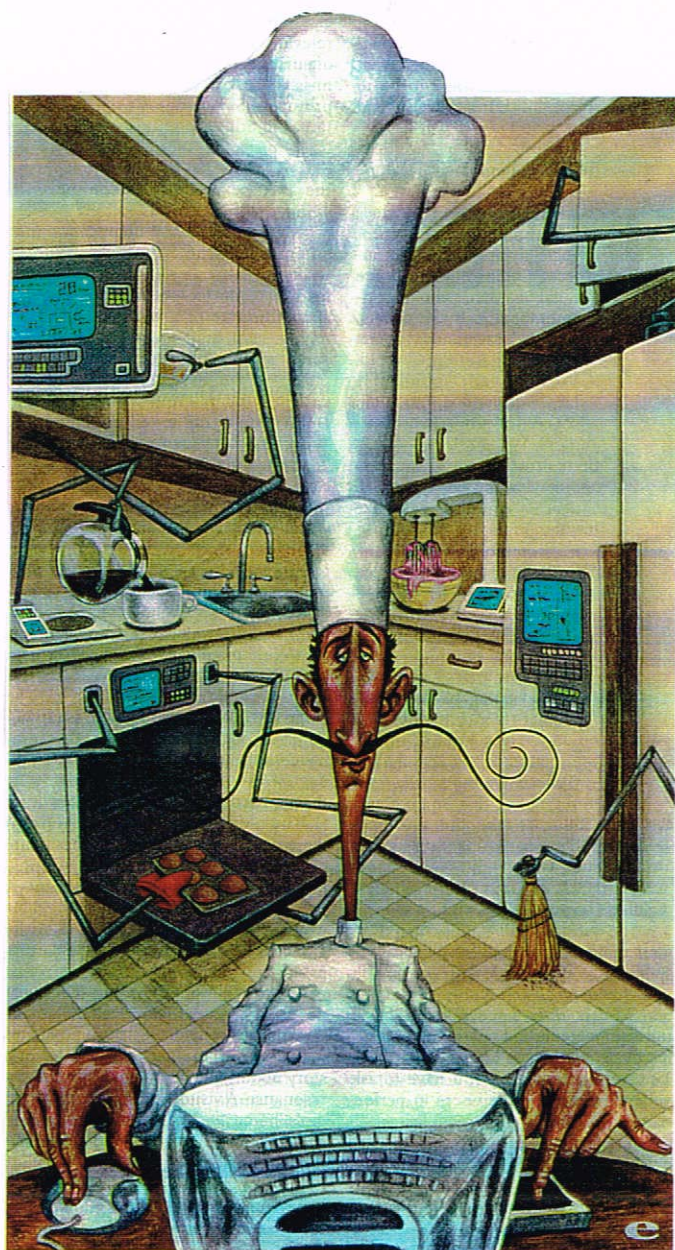
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YOUR GUIDE TO PERSONAL TECHNOLOGY

WHAT'S COOKIN' IN THE KITCHEN

Are you ready to download your weather report on your fridge and surf the Web on your microwave?



By ANITA HAMILTON

Look around your kitchen. Does the microwave make your day? Does the vegetable crisper turn you on? You may take guilty pleasure in your waffle iron's magic touch or your lickety-split ice cream maker, but it's doubtful you moon over the more basic appliances. Even today's state-of-the-art silent dishwashers and microprocessor-controlled ovens offer little in the way of techno-geeky sex appeal.

Ah, but say hello to the mess hall of tomorrow, coming to a kitchen near you. Researchers are trying to turn meat-and-potatoes appliances into silicon-sucking, Net-surfing devices that are smarter than Julia Child and cooler than Yan Can Cook. Computer chips, of course, will be in everything. Internet connections, not surprisingly, will be everywhere. Flat-panel displays, bar-code readers, transmitters, receivers—the way-new kitchen will have enough gadgetry to fill a Radio Shack.

At the cutting edge of the kitchen revolution is an M.I.T. Media Lab team headed by Professor Michael Hawley that is hard at work on a project called Counter Intelligence. "This is a time for bold experimentation," says Hawley. And just what does this brave nouveau world look like? An oven mitt. Well, more precisely, a talking oven mitt. Developed by visiting professor Ted Selker (he's the guy from IBM who invented the TrackPoint input device for note-

book computers), the mitt has a built-in sensor that can tell when your cookies are done. Just touch it to the hot pan, and the thing will squawk, "Ready to take out!" with scientific authority. Alas, it's still very version 1.0 and can't tell whether you like your cookies slightly gooey, extra crispy or right out of the dough bowl. For that kind of culinary customization, former student Joseph Kaye has developed—for a mere \$25,000—an espresso machine that reads instructions off a chip imbedded in your coffee cup. The chip tells whether you want a latte or a double espresso and tracks how much coffee you drink each week, so you can plan your coffee purchases down to the last bean. It can even play your favorite radio station while you wait for the fresh brew.

Hawley insists his inventions are more than just geeky toys. "The future of the kitchen isn't just taking more friction out of the picture," he says. "It's making it more enjoyable to actually cook and have fun with food. It's O.K. to be wacky, because you've got to fish around to find what really is virtuous and important." That argument has charmed companies like Nestlé, Kraft, Frigidaire and Sun Microsystems into ponying up \$10 million for the Media Lab's five-year research program. Counter Intelligence got its name from another Kaye invention: a kitchen countertop that can walk home chefs through recipes. It identifies each ingredient from digital ID tags placed on the packaging. Then it senses the weight of each ingredient as it's added to a mixing bowl (which rests on a scale) and tells the cook when to stop pouring. Who says cooking has to be hard?

Or tedious? Instead of spacing out while the microwave reheats last night's pizza, NCR's "Intelligent Microwave" lets you surf the Web. The yet-to-be priced prototype, due out sometime next year, has a flat-screen on the door and an Internet link. A built-in bar-code reader scans cooking instructions off the pizza box, so your pie can be perfectly cooked. If your hands are sticky, it can accept voice commands. "People thought we were a bit wacky when we announced the 'intelligent microwave,'" says Stephen Emmott, head of NCR's Knowledge Lab in London. But in Emmott's thinking, the microwave is an "invisible computer"

that even technophobes should feel comfortable using. Electrolux (which owns Frigidaire) has developed a similar prototype fridge with the same touch-screen display, Net link and bar-code reader. Swipe spent products across the bar-code reader, and it prepares grocery lists you can zap to an online grocer.

How much will all these gizmos cost? Since everything is still in the lab, it's tough to say. One possibility is having advertisers help foot the bill. NCR and Electrolux hope to strike deals with foodmakers, who will be able to pepper the touch screens with ads—much like the "free" PCs that were announced earlier this year. Hawley believes such up-close-and-personal messages might not be as awful as they seem. "I'm not saying that every time you walk up to the fridge, the Pillsbury Dough Boy should greet you with open arms and

sensor built into the bin how to sort each item. Researchers at NCR and M.I.T. both expect the radio tags eventually to replace bar codes altogether, but no one is predicting when. Of course, we all expected to be driving around in bubble-top cars by now, didn't we?

While most of these ideas could take years to happen—if they happen at all—a few are ready for market. By year's end, the Italian firm Merloni plans to sell a dishwasher, oven and refrigerator throughout Europe that will be networked to one another and to the Internet. "We strongly believe that anything electrical will eventually be networked in the home," says president Francesco Caio, who expects to charge a 5% to 10% premium for the extras. Instead of slapping a computer screen on the

WHAT'S HOT IN THE WIRED KITCHEN

► **ONE SMART FRIDGE**
Japan's V-Sync built a Pentium II PC with voice recognition and Net access into this prototype

◀ **CLASSY KITCHEN PC**
Keep tabs on your appliances or leave a note for Mom on Merloni's Home Smart Monitor

► **TALKING OVEN MITT**
Microchips in M.I.T.'s mitt sense pan temperature and tell you when food is done

say, 'Hey, you're not plumping up enough!' Instead, he says, advertising could be tailored to exactly what you buy, where you shop and when you're usually in the mood to think about it in the first place. If you shop every Monday night, for example, special deals could appear onscreen a couple of hours before you head out.

When it comes time to throw things out, even trash cans are ripe for reinvention. NCR's intelligent garbage bin automatically sorts glass, paper and metal into separate compartments. How? That's a good question. Unfortunately, bar codes on food containers would need to be replaced by small chips that use a technology called radio-frequency identification. The chips would instruct a

refrigerator door, however, Merloni is placing it in a stylish silvery frame that rests on the kitchen counter. Called the Home Smart Monitor, it's Command Central for your kitchen. Use it to leave notes for the kids, send flame mail to friends or flirt online while you wait for your microwave popcorn to pop. Home chefs plagued with short-term memories can store cooking programs that can be quickly called up on a much smaller display on the oven. The HSM even charts vital statistics, like how often you use the dishwasher, how cold the refrigerator is and whether the motor in your dishwasher is up to speed, which can be sent over the Net connection to let Merloni's customer-service center keep an eye on things. Just hope they like your cooking. ■