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Technology: Boosting Your Home's IQ

By Philip Elmer-Dewitt

The twelve-room house that Baseball Hall of Famer Willie McCovey built for himself in the foothills of Woodside, Calif., is as rangy as the 6-ft. 4-in. former slugger. But McCovey's home is not just big; it also has brains. A central computer links reading lights, kitchen appliances, thermostats and burglar alarms. Heating and air conditioning can be programmed to go on in one room but not another. Sprinklers buried in the lawn start up automatically -- and know enough to shut themselves off when it rains. A robot sweeper cleans the surface of a swimming pool, while infrared beams and motion detectors scan the property, guarding McCovey's irreplaceable collection of batting trophies whether he is at home or away. "What I like about it," says McCovey, "is you can just set it and forget it."

McCovey's smart home is more than a celebrity's novelty item. It is part of a fast-growing industry: home automation. The business has been booming for several years in Japan and is catching on among manufacturers in Europe and the U.S. Their goal: to do for the rest of the house what remote controls did for the family TV and VCR. "People are used to sitting in a chair and making things happen across the room," says Roger Dooley, publisher of *Electronic House* magazine. "The idea of turning lights and appliances on and off automatically is beginning to seem like a necessity."

Home automation took a major step forward last week, when the Electronic Industries Association/Consumer Electronics Group -- a trade organization that includes such giants as Sony, Panasonic, Philips, Tandy, Mitsubishi and RCA -- unveiled a new wiring standard called the Consumer Electronics Bus, or CEBus. CEBus will enable microprocessor-equipped appliances built by one company to communicate with those built by any other. In the first public demonstration, at the Winter Consumer Electronics Show in Las Vegas, enthusiastic manufacturers showed off a prototype CEBus-controlled home of the future packed with high-tech features. When a telephone rings in a CEBus home, the stereo automatically lowers its volume. As someone walks into a room, the lights go on. If a visitor pushes the doorbell, his or her face is displayed on a TV in the living room. Commuters

unable to reach home in time to cook dinner can set the oven timer by calling home and pushing buttons on the telephone.

At the heart of all such homes is a small computer that can link any number of kitchen appliances, security devices, and TV and stereo components. That computer can receive signals from telephones, hand-held controllers or touch-sensitive video screens. One tap on the screen of a typical system brings up a schematic diagram of the house. Another tap produces a display of the air temperature in every room. By selecting from a series of menu choices, the homeowner can tell the house to heat the bedrooms to a comfy 72 degrees F while leaving the rest of the rooms at an energy-saving 65 degrees. Or a family can order the air conditioning turned off while they are out of town and restarted three hours before they are due home. Once instructions have been recorded, the system automatically controls the flow of hot and cold air by means of motorized dampers installed in the ductwork behind the walls.

So far, only a few thousand U.S. homes are automated, but the number could rise rapidly. Some 700 smart homes are the work of Unity Systems, the Redwood City, Calif., company that boosted the IQ of McCovey's house. Unity sells Home Managers that can be geared to any climate or life-style, whether it means melting the snow off the porches of Connecticut mansions or heating hot tubs in California villas. Gail and Drew Arvay of Cupertino, Calif., rely on a Unity system to run their household while they pursue dual careers. Both of their school-age children and all their regular service people have been issued special pass codes that unlock the doors, as the computer records to the minute everybody's comings and goings. Even the Arvays' two-year-old niece Jennifer is served by the system. Whenever she toddles too close to the pool, a motion detector sets off an alarm that can be heard throughout the house.

So far, these features have not come cheap, except in Japan. A U.S. homeowner who wanted automated control over an entire house had to have it custom wired by Unity or one of a handful of competing firms such as Hypertek in Whitehouse, N.J. These systems start at about \$6,000 and go up quickly; the Arvays paid \$22,000 for theirs.

But when appliances incorporating the CEBus standard begin to appear later this year, homeowners will be able to build their own home-automation systems at a fraction of the previous cost. Several manufacturers, including Texas Instruments, CyberLynx and AISI, have announced plans to shrink the CEBus electronics into a chip that can be embedded at

the factory into everything from air conditioners to toaster ovens. Says Les Larsen, president of Boulder-based CyberLynx: "This will allow homeowners to control their environment to a degree not possible before."

CEBus systems use a house's existing wiring to control appliances. For example, a homeowner might plug a CEBus-compatible microwave oven into a wall socket in the kitchen. Then he or she could set the oven temperature and its start and stop time by using a CEBus controller. That could be a telephone linked to the house's electrical system, a home computer plugged into a wall socket or a remote hand-held controller that beams infrared rays to an outlet. Last week Bell Atlantic announced plans to test a new system that uses standard phones to control a wide variety of household functions.

There are even more ambitious plans in the works. In a project called Smart House, an offshoot of the National Association of Home Builders is developing a revolutionary wiring system that would supply not only AC power but also telephone, audio, video and high-speed data signals to every electrical outlet in the house. The wiring would enable homeowners to plug anything from a telephone to a waffle iron into one of the new outlets, and the socket would determine whether to deliver a dial tone or 120 volts.

The home-builders association has predicted that there will be 8 million Smart Houses in the U.S. by 1998, but in the past that group has been too optimistic. Four years ago, it planned to build 5,000 model homes by 1987; to date it has built just one. Market research - and common sense -- suggest that many people are not ready to move into a house that seems smarter than they are. "There is some terror associated with the idea of technology invading the home," admits Walt Strader of Honeywell. After all, it is one thing to have a TV or furnace go on the fritz, but quite another to see a whole house go kerblooey.

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