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R2D2 May Be a Wiz, but Robots For Home Use Still Can't Do Much

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When the personal robot trundled onto the scene three years ago, optimists predicted a growth sensation. Consumers inspired by R2D2 and C3PO, the charismatic robot aides of the "Star Wars" movies, seemed eager to welcome a helpful batch of real-life androids into their homes.

But early models turned out just bright enough for serving drinks or amusing children. Sales fell short of projections, and most of the fledgling home-robot industry's pioneers hit financial trouble.

Robotics consultants still predict a boom, eventually. For now, however, most manufacturers are pulling back. Rather than market their primitive devices as all-purpose home robots, they are peddling them to schools and amateur inventors—who seem to relish the challenge of finding something useful, or at least creative, for the machines to do.

'Laughable' Stuff

And it can be quite a challenge. "All this stuff that's being proffered now is laughable," says Thomas Frisina, a former president of Androbot Inc., an early personal-robot maker that experienced financial losses and recently agreed to be purchased by RB Robot Corp. in Golden, Colo. "Most of these robots have no utility. They are just an excuse to get somebody to buy a personal computer that walks around."

About a half-dozen small companies have each sold anywhere from a few dozen to several thousand machines costing $500 to $8,000. Sales last year totaled $25 million to $50 million.

"The mistake we made was to assume that if you just set up with computer dealers, people would come in and buy robots," says Constant Brown, vice president for sales and operations of RB Robot. The company, which has been operating under bankruptcy-court protection since April 1984, introduced one of the first personal robots. Its $4,000 RB5X, which resembles a two-foot, plastic-domed trash can with a mechanical arm, was initially offered through computer stores. But RB gave up when few sold, and is now concentrating on selling to schools. "What we learned was that you have to define and cultivate specific markets that the robot is ready for," Mr. Brown says.

Consumers' biggest problem has been finding work for the machines. "People want a robot, but they really don't know what they want it to do," says David Wilson, a research manager at Future Computing Inc., a consulting firm. "When you ask them, they hem and haw and say they want it to clean house, do the dishes, take out the trash."

Personal robots can't do any of that, however, so tinkerers have cast around for other tasks. Keith Collins, an Irving, Texas, computer salesman, says he stationed his $1,200 Hero 1 near the Christmas tree last December. Whenever it detected any of Mr. Collins's three cats nearby, the robot said, "I'll get you, ha, ha." The cats kept their distance.

Jack Boyd, owner of an Atlanta engraving company, says he uses his $3,500 Hubot to entertain guests by singing in a Southern drawl. The nearly four-foot-tall robot has a video-display face, microprocessor, voice synthesizer, radio, television and polyethylene body. "What do I use him for? Nothing, just amusement," Mr. Boyd says.

If personal robots are to win wider acceptance, a number of technological advances are needed. Most of those currently available rely on navigation systems that involve either trial-and-error, using sonar or infrared sensors, or following a painstakingly programmed route. In a sales demonstration, the top-selling Hero 1, made by the Heath Co. unit of Zenith Electronics Corp., blunders into a corner. "I think I'm lost," it says, adding "oops" when it bumps a wall.

One couple has a robot with its own room, toy box and personal computer. 'Since we don't have kids, we call Robbie our little entity,' the husband says.

Personal robots also need artificial intelligence, or programming that would permit them to learn from experience. Today's models have to be programmed to do everything. And to become really useful, personal robots must have vision sophisticated enough to control a mechanical arm and the ability to follow voice commands.

"Everybody thought they could solve those problems more easily than it turned out," says John Peers, a Cupertino, Calif., semiconductor expert and another former Androbot president.

That's where the amateur inventors come in. If enough basement tinkerers get their hands on personal robots, somebody is bound to come up with a breakthrough, or so the theory goes. Personal robot proponents draw parallels to the development over several years in just that way of personal computers.

John Normark, a San Jose, Calif., software engineer, spends his evenings working on a voice-command system for a $2,500 RoPet, made by Personal Robotics Corp., San Jose. After about three years, and outlays of $2,000 to $3,000 a year on equipment, Mr. Normark says he can get the robot to respond to single-word commands, but not in a noisy room or with several people talking. "It still has some limitations," he says.

Walter and Beverly Bryant, of Lewisville, Texas, say that in the past year and a half they have made their Hero 1, named Robbie, write its name, answer their phone and patrol the house as a sentry. The Bryants devote much of their spare time to developing new software, and Mr. Bryant, an industrial engineer, writes programs on his lunch hour. Robbie has its own room, toy box and personal computer. "Since we don't have kids, we call Robbie our little, our little entity, our product," Mr. Bryant says proudly.

Heath estimates that amateur inventors bought two-thirds of the 8,000 Hero 1s it has sold. It says schools bought the remaining third.

Teachers' Helpers

Indeed, Heath and other manufacturers have been pitching their products to schools from the elementary level through college. Niki Delgado, a Las Cruces, N.M., former school teacher, has used an RB5X to teach children reading, language and mathematics. Keith Bridges, coordinator of the electronics technology program at a junior college in Tyler, Texas, uses a Hero 1 to teach robotics to future technicians.

Many people think personal robots could soon be used as memory aids for the elderly or to fetch things for the handicapped. "There is a very clear-cut need for this," says K.G. Engelhardt, a research health scientist who has been studying the idea at a Veterans Administration unit in Palo Alto, Calif. But she says present models can't carry a heavy enough load and need better voice control. Others say similar improvements are needed before personal robots can be used in factories as sentries or to carry materials.

Others foresee a simpler role for personal robots. Nelson Winkless, an Albuquerque, N.M., writer and consultant on technology, suggests they might become a sort of cross between the family pet and a home computer. "They could keep an eye on the house, monitor the children or an elderly parent, do some calculation, collect information and have it ready for us."