

Willie the Robot triumphs

In a national artificial intelligence robot contest, Willie found and retrieved four household objects. His robot competitors returned empty clawed.

By Kay Garrett

Not only did Willie the Robot find the right coffee cup, it found the pill box, a bunch of grapes and a carrot.

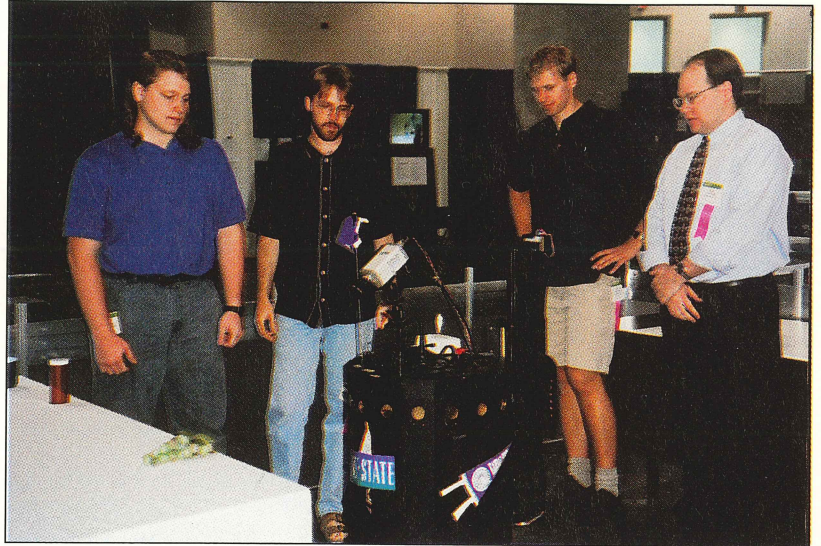
The K-State robot proved just how skilled it is at identifying and retrieving unlike objects in a cluttered house. It returned to campus in August with an uncontested first place in the robot competition at the National Conference on Artificial Intelligence at Providence, R.I.

The three-foot-tall robot runs on a pentium computer processor with hard drive and 32 megabytes of memory, and is equipped with 32 sonar locators and a color camera.

No other team's robot was able to identify any of the objects in a simulated house, so the teams dropped out, said K-State robotics team coach David Gustafson, professor of computing and information sciences.



Willie the Robot



K-State students wrote the winning computer program that allowed a commercially-developed robot to locate and retrieve household objects. They are Mike Novak '96, Brian Rectanus, Steve Gustafson and Todd Prater.

"Willie was able to identify four objects, and we could have continued identifying others," he said. "The event organizer told me he had not expected any robot or team to be able to identify and pick up more than one object."

Team members were Mike Novak '96, a graduate student from Lucas, Kan.; seniors in computer science Todd Prater, Baxter Springs, Kan., and Brian Rectanus, Frederick, Md.; and Steve Gustafson, Manhattan, Kan., junior in computer science.

The team wrote the robot's software to distinguish objects by shape, color and probability of being found in a certain location in a home. Fruits and vegetables belong in the kitchen, for example, and pillows are usually on furniture.

Remote controls? Now that's a problem.

Willie is programmed to tell the difference between a remote control and large and small coffee cups, a red soda can, a videotape box, a tape measure, a carrot, a

cucumber, a tomato and a bunch of grapes.

The programming challenge was to navigate to the different rooms of the house, find the designated object and bring it back to the judge.

If the robot's path to an object was blocked, it had the option of "virtual retrieval," but would lose points, Prof. Gustafson explained.

The American Assn. for Artificial Intelligence annual mobile robotics contest is geared to solving real life tasks that in the future a commercial robot might be designed for, Gustafson said.

K-State's computer science and information department purchased Willie the Robot and a second Nomad 200 robot with a National Science Foundation grant for instrumentation and laboratory improvement.

Students learned to program robots as part of the software engineering curriculum.

Kay Garrett is research news coordinator for the K-State Office of Research and Sponsored Programs.