McCullough Junior High eighth grader Austin Kosin didn’t have to go far to get an idea for his science fair project. He simply went home like he usually does, leaving a trail of “stuff” on the floor behind him. And when his mother asked him to pick up after himself, he again wished he had a machine that would just automatically clean up for him.

So Kosin decided to try to make one himself. The result was ARPA, his autonomous robotic personal assistant. The project recently took the “best in fair” award for students in eighth grade and younger at the 2009 ExxonMobil Texas Science & Engineering Fair in San Antonio.

Kosin’s robot is a modified Roomba vacuum cleaner. He removed the vacuum cleaning components of the machine, and using Solid Works, a computer program similar to AutoCAD, he designed the robot that will move around on its own and pick up after him.

The robot has a wooden arm, and a claw made of Legos that Kosin created and then programmed to pick up items off the floor. ARPA is turned on and controlled using a monitor Kosin built into it -- an old Gameboy.

The current version of the robot is programmed to pick up objects that are green. Using a camera, the robotic assistant automatically picks up any green objects and carries them to a red container.

Kosin created the program that controls ARPA’s actions using Interactive C.

“I wanted to put stronger motors on the arm, a better processor and for it to track more colors,” said Kosin, who hopes to some day become an aerospace engineer.

“I might do a continuation to improve it (for future science fair projects),” he said.

Kosin will attend the Academy of Science and Technology at The Woodlands College Park High School next year.
ARPA did win a special award from National Professional Engineers Association and was nominated for a Discovery Channel award.

The Discovery Channel award winners have not yet been announced.

Kosin, in addition to the science fair, said he participates in other robotics competitions, including FIRST Robotics, BEST Robotics, BOTBALL and the First Tech and First Lego League challenges.