

TROPICAL LIFE

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ALEJANDRO PEREZ

GETTING THE HANG OF IT: Gulliver Prep students Victor Naziazeni and Caroline Herald help teacher Scott Dorfman fine tune the O.P.EN device. Below, a close-up of its business end.

WITHIN THEIR GRASP



CHARLES TRAINOR JR./MIAMI HERALD STAFF

A door-opening device for workers in wheelchairs could win Gulliver Prep students a top national prize

BY ANA VECIANA-SUAREZ
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Confined to a wheelchair by cerebral palsy, Scott Dorfman depended on others at the nonprofit where he teaches to open and close doors for him.

"I had to ask anybody around me for help, so it can be pretty limiting," says Dorfman, 28.

Then a team of engineering students from Gulliver Preparatory School designed the Operational Portable Entry Device, which uses a telescopic mechanical arm with a clamp at the end to open doors. When attached to a wheelchair, it pivots horizontally and is adjustable vertically.

The device, dubbed O.P.EN, won the students Dorfman's gratitude and admiration. It also earned the Pinecrest school one of five finalist spots in the National Engineering Design Challenge, in which 250 high school teams vied to design the best technology to assist a dis-



MiamiHerald.com/living: See the device in action

abled person in the workplace. The finals, before a panel of judges, are Thursday in Washington, D.C.

It won't be Gulliver's first shot at the \$3,000 top prize. The school has been a finalist four of the six times it has entered the national competition, and has won twice — in 2003 for Time Traveler, a suitcase with see-through compartments to make airport inspections easier, and in 2006 for the Simple Electronic Ergonomic Box Opener for people with arthritis or carpal tunnel syndrome.

"The competition is an application of what they learn in class," says Claude Charron, Gulliver's science department chairman and the students' mentor. "We want to encourage hands-on learning and push them to see what they can create."

*TURN TO GULLIVER, 4E

WITHIN THEIR GRASP

Students' device in running for top prize

• GULLIVER, FROM 1E

Since October, 17 students from five engineering classes have put in more than 200 hours — mostly after school and on Saturdays — on O.P.EN.

"It's real-world experience," says senior Julian P. Costa, the project manager. "We wanted a device that could be used by people in wheelchairs everywhere."

The students began by identifying the problem they wanted to solve. They made about a dozen visits to Sunrise Community in Kendall, where Dorfman is a computer teacher, and noticed that wheelchair users must often ask others for help opening doors. They researched cerebral palsy and spina bifida, and observed Dorfman and another wheelchair user as they toiled around.

Then they examined existing technology and found that the few door-opening devices available were either expensive or inadequate. One, for example, requires the user



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REACHING OUT TO DISABLED: Scott Dorfman, center, shows off the O.P.EN with students Julian Paul Costa, left, Rebecca Stanford and Jose Mujica.

to lean out of the wheelchair, increasing the risk of falling.

"We did a lot of brainstorming and sharing of ideas," says Alina Armada, the math department chair, who also helped with the project. "We sat

around and talked about different possibilities. Every student had some input and we considered everything."

Dorfman was skeptical at first. He worried that the students wouldn't see the project through.

that would work on a variety of door handles. Finally, it had to be compact enough to be stored on the wheelchair and fit through a door.

"Getting it right was very time-consuming," says Andrés Valencia, 17, a junior. "At one point I couldn't get a part to work the way I wanted to and we had to work it over and over."

As the students experimented, they discovered their own interests and talents. Some gravitated toward design, others to construction. Alex Stanford, a senior, realized she wasn't particularly good at either.

"But I found my niche," she says. "I'm real good at communication and marketing."

The O.P.EN device joins a list of Gulliver student inventions — among them a solar-powered water purification system, a retractable rain canopy for wheelchair users and an alert system that detects when someone falls out of a wheelchair — that have earned the

school and its engineering advisor national acclaim.

Charron, who received the Massachusetts Institute of Technology Inspirational Teacher Award in May, credits the students with the school's success.

"I trust these kids completely," he says. "They're not afraid to work."

He's also proud of the way their attitudes evolved



CHARRON

over the course of the project. When they began tinkering with the idea of a door-opener, he says, winning was their central focus. But after spending hours with Dorfman, the competitive spirit gave way to something more meaningful.

"After meeting Scott and watching him try to open and close doors, you realize that what you want to do is help him," says David Shapiro, 17. "This will give him so much independence. Winning is really secondary."