

## A level playing field: Lab adapts toys for disabled children

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In this Thursday, Dec. 1, 2016, photo, University of North Florida students, Garrett Baumann, right, Chris Martin, center, and Jason Pavichall, work to customize a toy car so that it can be used by a girl with cerebral palsy at the university in Jacksonville, Fla. At the university, engineering and physical therapy students are converting drivable toy cars from store shelves into custom-made fun for disabled children. The Adaptive Toy program is now in its third year, has received a 5-year grant from the National Institutes of Health and is helping families with disabled children while giving the students a dose of community service that will stick with them long after graduation. (AP Photo/Jason Dearen)

Because of her cerebral palsy, 4-year-old Scarlett Wilgis has trouble opening her hands and can't get around without help. Her parents have scoured store shelves and websites for toys for her but have mostly been disappointed.

"Finding the toys at Walmart or Target, they're pretty much non-existent," said mom Dezaraye Wilgis, sitting with Scarlett in front of their twinkling Christmas tree in St. Augustine. "Or if you get them through a medical supplier they're extremely expensive."

While major toy-makers have changed with the times and sell dolls with wheelchairs and crutches, those designed to be used by children with severe disabilities are still difficult, if not impossible, to find. Because the toys have to be customized for each child, the cost can skyrocket.

This conundrum gave two University of North Florida professors an idea: mix engineering and physical therapy students in a lab with the goal of converting toys from store shelves into custom-made fun for disabled children. The Adaptive Toy Project is now in its third year and has drawn a five-year grant from the National Institutes of Health. It is helping families such as Scarlett's while giving the students a dose of community service and real-world experience that will stick with them long after graduation.

Dr. Alison Cernich, a neuropsychologist and director at the NIH's Eunice Kennedy Shriver National Institute of Child Health and Human Development, said the agency funded the program because it forces students from different fields to collaborate and solve a problem in the community.

"This program is getting students in the early phases of their training thinking about ordinary objects, toys, and how to adapt those toys so that children with limitations can use and play with them like children

without limitations," she said.

On a recent day, the school's small lab buzzed with the sound of tools and chatter as students customized cars for their new owners.

Chris Martin, an electrical engineering student, had removed the hood of Scarlett's car, exposing its wires.

A large push button replaced the steering, and light sensors mounted underneath the car will allow it to follow a line of tape along the floor whenever Scarlett hits the button. Now, Scarlett's parents can design routes for the car with tape or use a remote-control mode for family walks.



In this Thursday, Dec. 1, 2016, photo, Scarlett Wilgis, bottom, is held by her brother Joey McKinley, 17, while her father Herman Wilgis observes them in St. Augustine, Fla. Because of her cerebral palsy, 4-year-old Scarlett has trouble opening her hands and can't get around without help. Her parents have scoured store shelves and websites looking for toys for her, but have mostly been disappointed. Scarlett and her family are part of the Adaptive Toy Program at the University of North Florida, which assigns engineering and physical therapy students to convert drivable toy cars from store shelves into custom-made fun for disabled children. (AP Photo/Jason Dearen)

When Martin first met Scarlett's mother, "she actually cried, and it just made me want to work harder," Martin said. "I just want to make it as perfect as possible for her."

The cars retail between \$250 and \$500; the customization makes them worth well over \$1,000. The families, about 18 so far, get the cars free.

Mary Lundy, a UNF professor of physical therapy who started the Adaptive Toy Project with an engineering colleague, said the students meet with families, and go to therapy appointments and schools.

"Engineering students teach the physical therapy students how to modify basic electronics ... and in the process engineers learn how to do people-centered designs, and how to look at their clients differently," Lundy said.

For the kids, it's also a way to continue important therapies through play.

Dr. Peter Rosenbaum, a professor of pediatrics at McMaster University in Canada, said his field is increasingly focusing on "augmented mobility," to give kids a way to move around so they can be more independent.

"We can't fix them," Rosenbaum said. "What we can do instead is say, 'What would a child at this age and stage of development be doing if they didn't have their impairment? How can we give them those experiences?' This changes the perspectives of everyone around her, and her perspective of herself."

UNF's program is one of 60 related toy car programs for disabled children internationally that are part of the Go Baby Go network, but is the only one that has enlisted students to customize the vehicles for free.

After weeks of work, Scarlett finally tested the car Martin and his colleagues built. They strapped her in and showed her how to hit the push button in the toy she would hopefully use for at least three years. The car drove forward, and Scarlett rocked back and forth. Her mother fought back tears, and her father walked alongside her.

"For her, she's going to be able to get out more and not be trapped by a wheelchair ... and for us it'll be nice to see her interact with other children. It's amazing," Dezaraye said.

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