

# ASU student team builds affordable prosthetics for pediatric use

By Hannah Weisman, ASU News  
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Often, it's the smallest among us who get overlooked. The first safety-focused car seats weren't developed until the 1960s, and it wasn't until later that decade that child-resistant pill bottles were introduced.

[Devils Prosthetics](#), however, has had youth in mind from the start.

The student-led project, which originated in the [Engineering Projects in Community Service](#), or EPICS, program through the [Ira A. Fulton Schools of Engineering](#) at Arizona State University, makes affordable, 3D-printed upper-limb prosthetics for children.

What sets their devices apart is the team's design focus on functionality, adaptability and personalization, qualities often missing from pediatric prosthetics.

[Jared Schoepf](#), the ASU EPICS director, says the project reflects the students' commitment to finding impactful solutions.

"The students on this project are dedicated to creating not simply an innovative solution, but also a solution that addresses the key needs of the end user," Schoepf says. "Through their commitment to involve key stakeholders in the design process, the team is developing a product that will allow for significant impact and truly help people."

The team's efforts recently led to them receiving \$14,000 in funding from [Venture Devils](#) and \$2,000 from the EPICS Elite Pitch Competition, signaling the potential impact of their solution and their readiness to move beyond the classroom and into the biotech startup ecosystem.

## Filling niche needs

Pediatric prosthetics face several challenges that adult-focused solutions often fail to address: children grow quickly, play rough and many simply refuse to wear devices that are uncomfortable,

heavy or stigmatizing.

“Cost is the biggest barrier,” says Paige Danes, an aerospace engineering junior and the team lead. “Insurance often won’t cover more than one prosthetic, and kids need multiple as they grow. Families can’t realistically afford to regularly replace devices that cost anywhere from \$16,000 to \$50,000.”

Many pediatric prosthetics on the market are purely cosmetic, offering little functional benefit, or are body-powered, meaning the prosthetic activates when the user strategically positions their body. However, body-powered prosthetics perform limited gestures like opening, closing or turning.

More advanced prosthetics are capable of multiple types of movement through [myoelectric sensors](#), which read the subtle electrical signals generated by residual muscles when a user thinks about moving their missing limb. However, this technology is more expensive and is generally reserved for adult users.

Devils Prosthetics is addressing that gap by developing durable, user-friendly and cost-effective myoelectric prosthetics designed specifically for children. Their methods use machine learning and custom calibration to allow the prosthetic to adapt to each child’s unique muscle patterns and recalibrate daily, as needed.

“Every child’s body is different on any given day,” says Laynie Ben, an aerospace engineering junior and administrative lead. “Our system learns how that specific child thinks about movement to have better accuracy, control and overall experience.”

Because the prosthetic is largely 3D printed, the team can keep costs low at a target price of \$2,000 or less while allowing for customization, from colors to themed attachments, that makes kids excited to wear it.

## **Pitching potential**

When Devils Prosthetics entered Venture Devils and the EPICS Elite Pitch Competition, the team needed flexible funding to accelerate prototyping and purchase equipment that EPICS funds couldn’t cover.

Preparation was intense and fast-paced. With just weeks before deadlines, students split into focus groups to develop a pitch deck, executive summary and video pitch.

“When you trust people and give them responsibility,” Danes says, “they step up.”

Judges consistently cited the team’s clarity, preparation and credibility. Danes and Ben intentionally coached newer team members to take the stage, turning the competitions into learning experiences for the entire group.

Danes, who is continuing her sixth semester on the team, notes that most EPICS projects originate when a community partner reaches out to the organization and are wrapped up within three semesters. While the project originated in 2021 through those standard channels, several team members proposed adapting the project after its initial completion to support the underserved pediatric community.

“There was a moment where we had to sit down and say, ‘What are we actually trying to do?’” Danes said. “Once we narrowed the scope, everything accelerated.”

The team now operates with more similarities to a professional, startup-style structure, divided into mechanical, software and administrative sub-teams that all played vital roles in the pitching process.

“That was important to us,” Danes said. “This wasn’t just about winning money; it was about growing our people.”

## **Sustaining a supportive ecosystem**

With external funding secured and an LLC officially filed, Devils Prosthetics is entering a new chapter that still involves prototyping and iteration but now carries real-world stakes.

“It’s exciting and terrifying,” Danes says. “People believe in us, and that’s a huge responsibility.”

The team credits much of its momentum to the resources and support of the EPICS community, which provided the opportunity for the project to persist across years and cohorts, and to the entrepreneurial perspective of Venture Devils, which pushed the team to articulate value beyond technical achievement.

“EPICS teaches you how to build,” Ben says. “Venture Devils teaches you how to explain why it matters.”

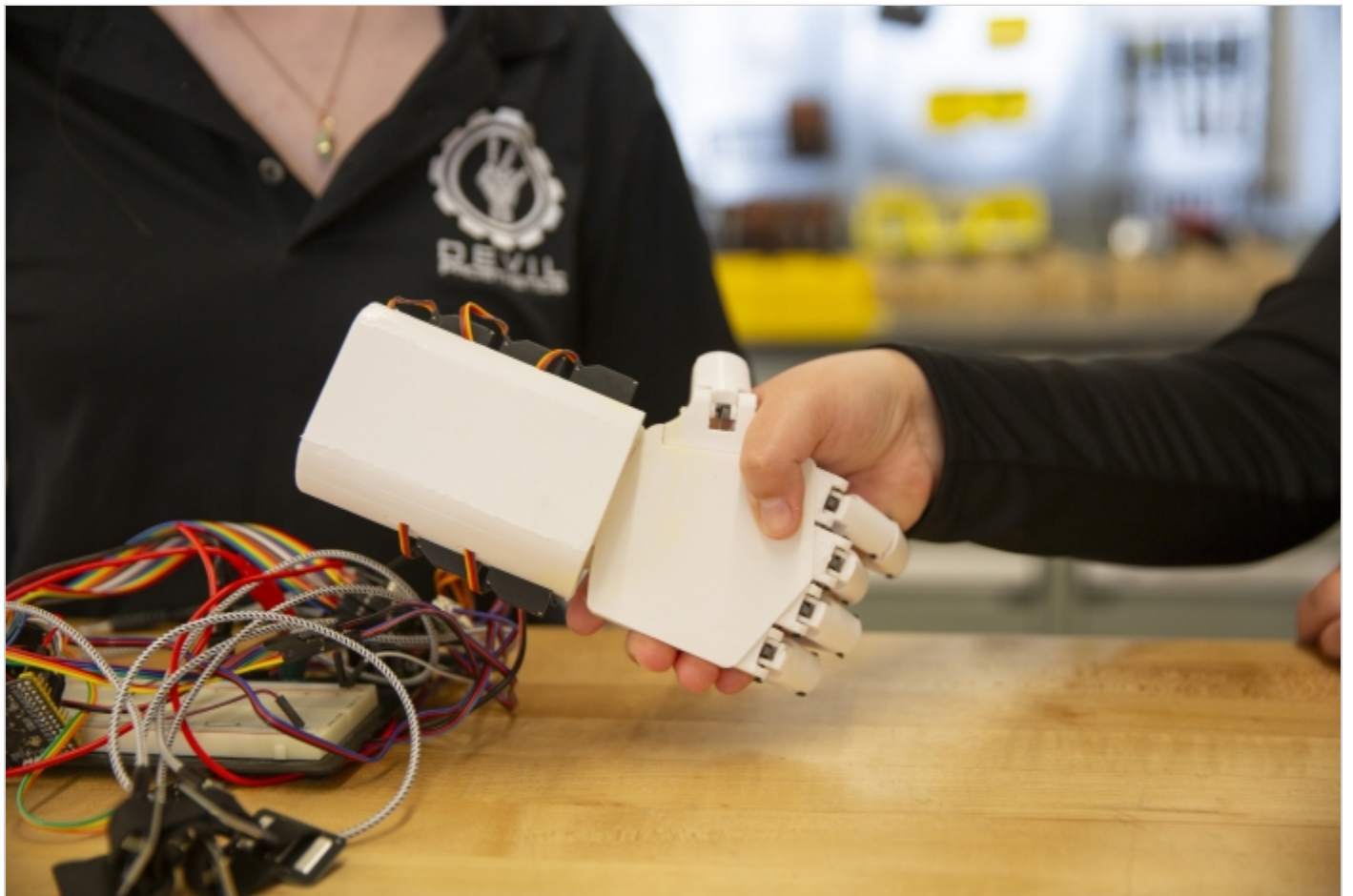
Both students say that the experience has reshaped their confidence — not by eliminating fear, but by proving they can work through it.

“If our team can win \$16,000 in two weeks, what else could they do?” Ben says. “The sky’s the limit.”

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*This story originally appeared on [ASU News](#).*

## **Main image**



Devils Prosthetics, a student-led project turned startup, makes affordable, 3D-printed upper-limb prosthetics for children. Photo by Erika Gronek/ASU