



PICKING UP SIGNALS

Student wins honors with robot prosthetic

BY JIM STAFFORD
For The Oklahoman

Emily Haas flexed her biceps, and the fingers on a purple plastic robotic hand sitting on a table before her flexed as well. She did it again. Biceps flexed. Fingers flexed.

Her audience wanted to see it again. And again.

Haas, a 16-year-old junior at Deer Creek High School, was demonstrating what is known as a myoelectric prosthetic.

The robotic hand responds to electric signals detected in muscle movement in Haas' arm and translates them into movement in its prosthetic fingers.

My colleague, Debbie Cox from the Oklahoma Center for the Advancement of Science and Technology (OCAST), and I watched the demonstration in amazement.

We learned that Haas built the entire project from scratch and won the national SkillsUSA Principles of Engineering & Technology competition earlier this year.

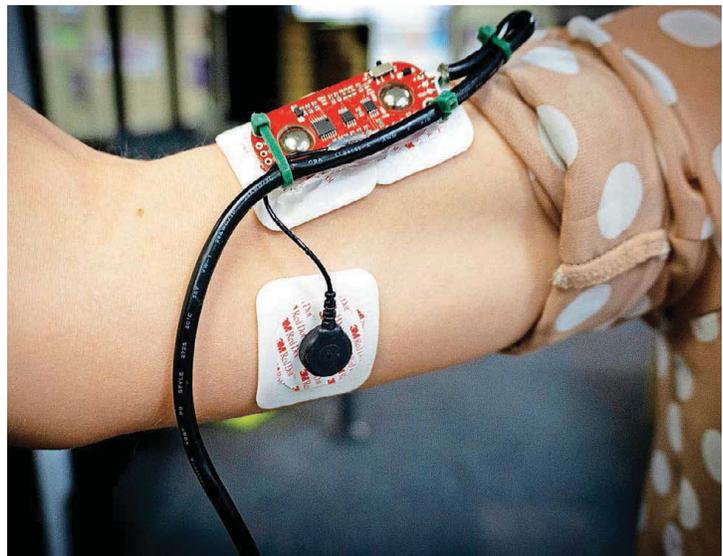
It all began, she said, when she was a middle school student who entered a robotics competition that sparked her love of STEM, or science, technology, engineering and mathematics.

"I knew that I wanted to help people from a physical therapy standpoint, and I also knew that I wanted to do robotics," she said. "So, those two came together to become prosthetics, and I've just been really

SEE STEM, 7B



Emily Haas, a junior at Deer Creek and Francis Tuttle Pre-Engineering Academy, won first place in the national SkillsUSA Principles of Engineering & Technology competition. (PHOTOS PROVIDED)



Electric signals detected in muscle movement in Emily Haas' arm are translated into movement in the prosthetic fingers of a robotic hand she designed.

MORE ONLINE

Go to Oklahoman.com to see a video about the robotic prosthetic hand developed by Deer Creek High School student Emily Haas.



Dec 06
2018
Page B006
Clip resized 37%

The Oklahoman

STEM

CONTINUED FROM 6B

passionate about it ever since.”

Last year, Haas was a first-year student in the Pre-Engineering Academy at Francis Tuttle Technology Center’s Portland campus. She wanted to tackle a project for the SkillsUSA engineering competition.

Francis Tuttle Engineering Academy instructor Brad Sanders suggested the prosthetic project.

“I knew that she was interested in prosthetics through talking with her in class last year,” Sanders said. “So I threw out the idea and really encouraged her to build a



Brad Sanders, Francis Tuttle Engineering Academy instructor

prosthetic, connect it to the nervous system.”

Haas jumped into the project, first with extensive research that included watching videos and reading scholarly studies on myoelectric prosthetics. She printed the hand on a 3-D printer at Francis Tuttle, then engineered the static plastic prosthetic into a

dynamic hand in which the fingers could contract.

And when it finally worked?

“I have a video on my phone of me about 5 minutes after it started working,” she said. “You can definitely tell that I was very, very excited.”

Haas wrote an eight-page paper about the hand, which was submitted as part of the Skill-USA competition. She won the state competition in April and followed that with a first place national finish in June in Louisville, Kentucky.

Haas sees herself designing and building prosthetics, possibly in her own company some day. She already has been invited to serve an internship at Scott

Sabolich Prosthetics.

“I hope this leads to my own career,” she said. “I hope to create a business where we are focused on helping people regain their mobility and regain the ability to live on their own and the freedom they could have with that.”

She’s laying the groundwork for that career at the pre-engineering academy at Francis Tuttle.

“One of the best decisions I ever made was to be here at Francis Tuttle and involved in STEM,” she said.

Jim Stafford writes about Oklahoma innovation and research and development topics on behalf of the Oklahoma Center for the Advancement of Science & Technology (OCAST).