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Camdenton robotics teams preparing for high-tech, high-stakes competitions



Camdenton 4-H FIRST LASER Robotics junior Matthew Biggee explains how the team's computer programmers use a testing board. Photo by Rebecca Martin.

By Rebecca Martin

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The Camdenton 4-H FIRST LASER Robotics team is busy preparing for its fifth year of high-tech competition.

Now four weeks into its “build season,” the Camdenton High School team has six weeks to design and construct a robot to compete in an “aerial assist” game, in which the student-controlled robots move a 24-inch ball across the field and into low and high goals to score points.

More than 4,000 robotics teams worldwide learned the year’s FIRST Robotics Competition game rules Jan. 4 and have been working on their robots, which have to meet specific size and weight requirements, ever since. Camdenton’s team hopes to complete its robot and begin testing it this week, said assistant coach Jim Jackson.

While the robot’s material construction is important, the math, physics and programming behind it are what makes everything work. “We have to figure out how to kick the ball and how to get it off the ground,” Jackson said.

Luckily, the team of 36 has plenty of students working specifically on the competition’s different aspects, including the mathematical calculations, computer design drafting software, computer programming and marketing presentation.

The high school team will complete its robot by the Feb. 18 deadline, and then take it to compete at the Central Illinois Regional Feb. 27 through March 1 in Pekin, Ill. A first-place there or at the St. Louis Regional March 13-15 — or winning one of two other awards — would qualify the team to move on to the international FIRST Championship April 24-26 at the Edward Jones Dome in St. Louis.



Brian Payne, right, of Speedline Technologies teaches Camdenton 4-H FIRST LASER Robotics team president Garrett Johnson, left, and vice president Mitchell Woodside, center, about aluminum welding techniques.

Now in its fifth year, the high school team has already been extremely successful, winning regional competitions three of its four years in existence and finishing in the top 24 teams worldwide last year.

The robotics competitions — deemed by the FIRST organization as the “sport for the mind” — are just as exciting as any sporting event, said Sherry Comer, Camdenton R-3 After-School Services Director and robotics team mentor.

“It is very purposeful that it is modeled around a sports model,” Comer said. “It’s an introduction to get kids excited about STEM — science, technology, engineering and math.”

It seems to be working, as 96 percent of high school seniors who have graduated from the program have gone on to major in a STEM-related field in college.

“A lot of high school students will take the path of least resistance because they don’t see the ‘why,’” said head coach Mitch Comer, discussing how students in the robotics program see what difficult math and physics calculations can produce. “My kids who go through the robotics program get to see the ‘why.’”

The high school team isn’t the only one competing on the international level. The Camdenton Middle School robotics team, strong at 32 members, competed in its FIRST Tech Challenge state qualifying tournament in Kansas City, Mo., last weekend.

With one of every 20 students participating in the program, the Camdenton school district now makes 4-H FIRST LASER Robotics available to students as young as second grade.

Running the program requires a huge amount of man power and hours spent guiding students through the process year round, a feat beyond the means of school staff alone. That’s where community mentors come in. For example, mentors at Camdenton’s Speedline Technologies donate hundreds of hours of their time each year mentoring.

“I’ll help them figure out stress and speed calculations for the robot and just help them brainstorm,” said Speedline mentor Jim Morris. Morris said the robots are “student-designed, mentor-approved.”

“The mentors are kind of a guard rail,” he continued. Speedline’s parent company, Illinois Tool Works, is one of the program’s several corporate sponsors and makes a financial donation based on the number of hours its employees spend mentoring.

The students and community mentors work together outside of the build season developing their skills for presentations and fundraising to help offset the team’s travel costs. Currently the team is selling FIRST Green e-watt saver light bulbs to raise funds, which community members can purchase by contacting Comer at 573-346-9233. The team also partnered with Hy-Vee to hold a food drive last weekend.

For more information about Camdenton’s FIRST LASER Robotics program, visit the student-constructed website at laser3284.com. For information about the international FIRST organization, visit usfirst.org.

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