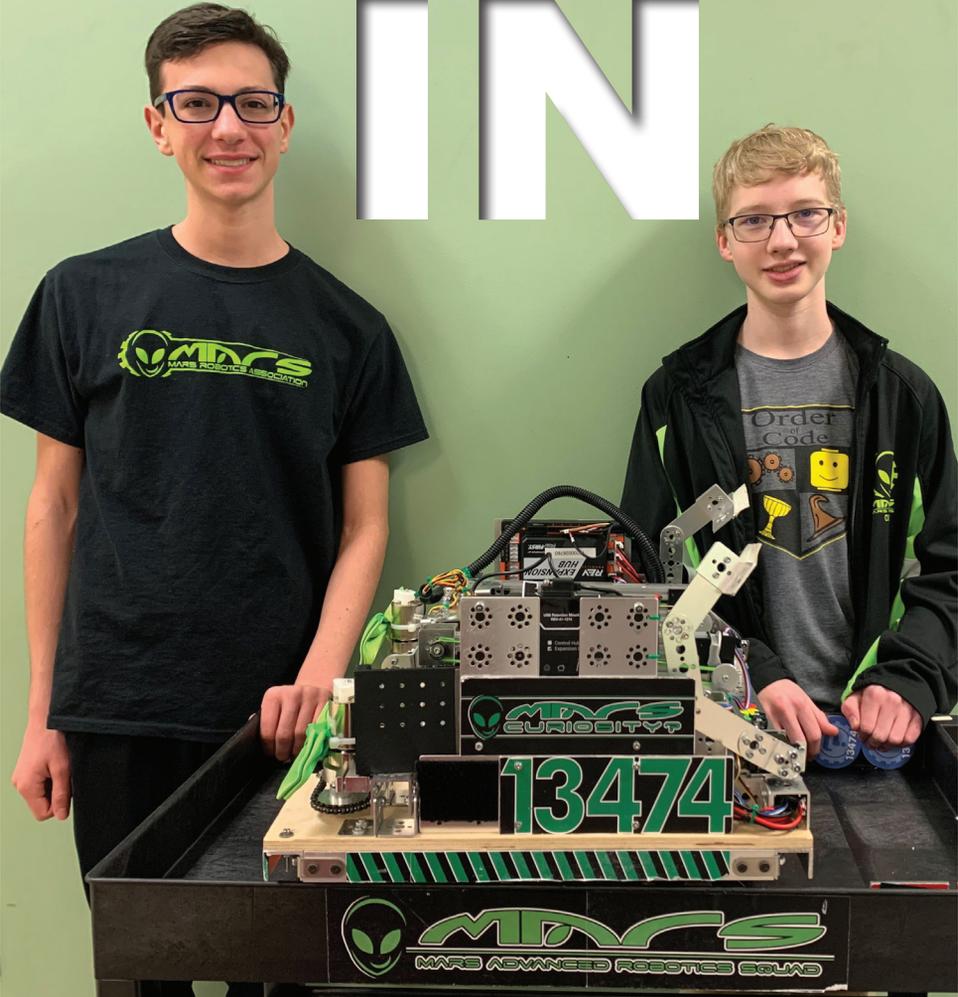


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Freshmen Luke Kastner and Owen Anderson to compete in State Robotics Program as members of the Mars Robotics Association.

BY NICOLE TAFE

Pine-Richland’s Luke Kastner and Owen Anderson will be competing in the FIRST Tech Challenge (FTC) State Championships in February. Both young men participate in a community-based FTC team called Mars Robotics Association. The team—which strives to develop STEM skills in students—has participated in two Pennsylvania qualifiers since December. At both competitions, the team was nominated for multiple awards, earned the Think Award and won the overall first place Inspire Award securing their advancement to states. The team raises funds, designs, markets and completes outreach projects all in addition to

designing, creating and operating robots for competitions.

Luke Kastner, 14, is a freshman at Pine Richland High School, and the son of Dan and Rita Kastner. In school, he’s involved in many clubs, including programming club and math club. Luke enjoys academic competitions and has participated in CalcuSolve, National Academic League and Battle of the Books. He’s also part of the school’s Ultimate Frisbee team. Aside from participating with Mars Robotics Association, he enjoys water skiing and snow skiing and is a member of his church’s youth group.

Owen Anderson, 15, is a homeschooled freshman and the son of Erik and Kiera Anderson. Like his teammate Luke, Owen

has a wide range of interests. In addition to being a member of the Mars Robotics Association, he’s involved with Boy Scout Troop 344 in Wexford, and attends Zang Tae Kwon Do. Owen also loves camping and backpacking and was able to go to Philmont, New Mexico, on a 10-day backpacking trip last summer. “I have a passion for aquaponics and am working on building a 200 gallon automated system in our garage,” he says. “I also volunteer at my church every Sunday, helping with the sound and slides.”

Their robotics team is called MARS: Curiosity? and is part of the community-based robotics organization Mars Robotics Association. Their team includes 11 members from 9 different school districts.

Luke and Owen both joined the team in the spring of 2019. Prior to that, they were on FIRST LEGO League teams, and both boys have displayed a passion for robotics from a young age.

The team is coached by Jeff Beckstead. Jeff has a career as a physicist and has been coaching, judging and mentoring FIRST teams for 17 years. Beckstead dedicates endless hours coaching FIRST teams entirely on a volunteer basis. He is currently coaching four teams—two FTC and two FLLs part of the Mars Robotics Association and continues to judge and volunteer in other FIRST competitions as much as he can.

The Mars Robotics Association is a 501(c)3 nonprofit organization located in Mars, PA and has programs for students in fourth through twelfth grade—FIRST LEGO League (FLL) and FIRST Tech Challenge (FTC). The group is a part of FIRST (For Inspiration and Recognition of Science and Technology)—the leading, not-for-profit STEM engagement program for kids worldwide. Teams compete in local, state and national tournaments. Each season, the teams design, build and program robots to compete head-to-head with other FIRST teams. As a part of these competitions, participants also do scientific and engineering research projects that pertain to real life. The Mars Robotics Association had 18 students in its programs during the 2018-19 season and this year, both of their programs have doubled in size. While the programs are robotics based, the focus is on teaching students life skills such as teamwork, problem solving and business skills. “We are not using kids to build robots. We are using robots to build kids,” says Dean Kamen, founder of FIRST.

Luke and Owen are programmers for the team, mainly programming the movements of the robot and the attachments used to move objects around during the competitions, using the Java programming language. They helped program the code that allows the robot to move autonomously as well as put the code structure together. They are also drivers during competitions, maneuvering

the robot on the field, including operating the lift mechanism.

“Our team has been preparing for the state competition since the first qualifier in December,” says Luke. “During that qualifier, we won Second Place overall which is called the Inspire award. By



winning this award, our team was one of four teams at this competition to qualify to move onto states.”

“In early January, we participated in another regional qualifier at Eden Hall Upper Elementary, where we earned the First Place Inspire Award out of the 23 other teams participating,” continues Owen. “Now, we have time to improve our robot before the next qualifier at Oxford, PA, at the end of January.”

FIRST is one of the major robotics competitions worldwide, and encourages collaboration and teamwork as part of the competition—making it extremely unique. FTC teams are assigned with an alliance partner at competitions not knowing in advance who the team is or what their robot can do. This means that teams must build their robot to allow it to work with another team’s robot during the competition. Teams that are meeting for the first time at the competition, must collaborate and create the best plan for their robots to complement each other to score the greatest amount of points together. Robots paired in one match are partners, while in another match they may be competitors. Because of the unique nature of the alliances, competitions are friendly and fun.

“We have been preparing for the State Championship by testing and refining our current robot and adding automation to make driving easier,” says Owen. “This includes adding autonomous features for placing blocks and driving. We are also

working on a second design that will solve many of the hurdles with our current robot. The engineering notebook is a key part of the competition, so we are working on adding more information and graphics to it. If we do well at states, we could advance to the World Festival in Detroit in April.”

“I enjoy robotics because I get to help design, build, and program a robot as well as try new things,” continues Owen. “The people on the MARS: Curiosity? team are also really talented and nice. The competitions are a lot of fun because we get to talk to other teams and meet new people.”

“I am passionate about robotics and I have been interested in technology ever since I was little, and I really enjoy both building and coding robots,” says Luke. “I think everyone should have at least a bit of experience doing robotics because of its growing importance in society. Robotics is important because as technology continues to advance, it will be important for more and more people to have these skills.”

Both boys are excited to continue with robotics on their team throughout high school and plan on pursuing some form of robotics in their future.

Mars Robotics Association is entirely volunteer-based and financially supported by their sponsors. To learn more about the Mars Robotics Association, please visit their Facebook page and/or website: marsfirstrobotics.org, or email info@marsfirstrobotics.org. Additional information about the FIRST program can be found at firstinspires.org. ■

Mars Robotics welcomes new members throughout the year and will be having an Open House on Sunday, February 16, from 4 to 6 p.m., at Glade Run Church 1091 Pittsburgh Road, Valencia. Programs are available for current 3rd grade to 11th grade students.