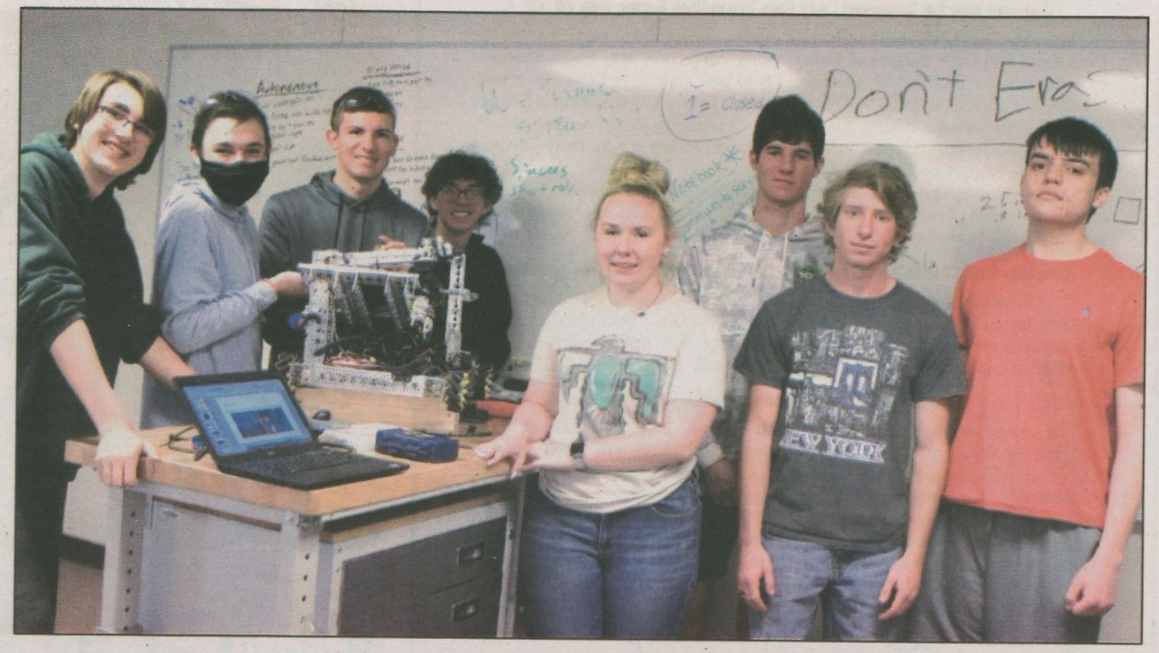
Canadian Wildcat Robotics teams hit their competitive stride in p

STORY & PHOTOS
BY LAURIE EZZELL BROWN



The Wildcat Robotics 1 Team huddles around the robot they have spent the year perfecting. Team members are (from the left) Nicolas Benson, Everett Cook, Mason Drager, Andrew Renfro, Callie Vinson, Rylun Clark, Ethan Flowers and Logan Gatlin.

Canadian High School's Wildcat Robotics 1 team will compete this Saturday in the TX FTC (First Tech Challenge) West and Panhandle Regional Championships, with the hope of advancing to the state level of competition.

For those who haven't heard of Wildcat Robotics 1, don't feel too bad. The robotics program at Canadian Middle and High schools is a relatively new one. The program started here in 2019, and like most other extracurricular academic and sports events, it fell victim to the COVID pandemic in the spring of 2020, when schools were abruptly shut down at the prime of the UIL competitive season.

That delay doesn't seem to have dampened the team's enthusiasm, however. In fact, the robotics team has a growing number of sixth-grade students hoping to be recruited for what is, at this point, a limited number of openings in the program.

When we visited the portable building that is their home base at Canadian High School, the team members who arrived for class were visibly energized and engaged, entering the room and immediately launching into their work as they prepared for this weekend's competition.

FTC is a mid-level robotics competition targeting students in grades 7-12. Teams of students are responsible for designing, building, and programming their robots for competition. In the process, they apply real-world math and science concepts, develop problem-solving organizational and team-building skills, and compete and cooperate in alliances and tournaments.

At each level of competition, awards are given in recognition of those skills, ranging from community outreach and design to motivation and inspiration.

In their first division contest earlier this spring, the high school team earned enough points to advance to the regional level. They collected both the Motivation Award and one for "Gracious Professionalism," which—if it isn't considered a real-world skill—certainly should be.

Their coach, Bruce Bryant, explained "gracious professionalism" this way: "A team can call us and need a part. We meet them halfway. A team can call and not know how to program something. We would help."

"Even though we're in a competition," Bryant said, "we want to help others because it's really for the good of everyone. It's about building for the future—not just about winning right now."

The Motivation Award, he said, was at least partially in recognition of the team's community service outreach project. The students organized a community fund drive, the proceeds of which were used to purchase toiletries, toothbrushes, and other necessities to be donated to the Snack Shak program for students whose families cannot afford them.

The first classroom is filled with desks and chairs, a variety of printers—including one that prints 3D objects—and dry-erase boards with scrawled notes and formulas and drawings. The other room is clearly the heart of the operation, though.

It is lined with tall work counters, topped with a small array of robots in various stages of construction. Each one displays an amalgam of gears and belts, motors and servos, and articulated arms and cameras. The carpeted floor is replaced in the center of the room by a rubber-tiled grid, with blue tape demarcating key zones, and a low railing lining the perimeter. This is where the robots go to work.

The challenge for each team's robot is to find and pick up a set of three orange disks, then load them and launch them at the target. Each challenge allows 30 seconds of autonomous movement and a two-minute driver-controlled period. The last 30 seconds is "the end game," in which the robot can perform tasks to score higher points—among them shooting a different set of targets, or picking up the wobble and setting it outside the perimeter.

The fully-assembled robot cannot exceed the size of an 18-inch square block. "Everything has to unfold from there in order to reach over, reach out, and do things outside of that 18 inches," Bryant said. "So critical thinking and problem-solving are required."

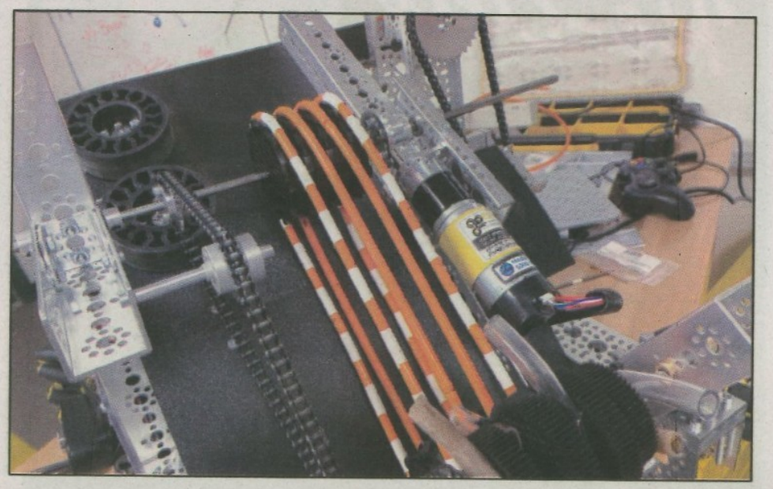
Some of the parts used are sophisticated—some, less so. Duct tape, zip ties, and even wire ties from bread bags—"quick to get off and you don't have to waste a zip tie," Bryant explained—have proven indispensable, and inexpensive, parts.

"This is a complicated system...actually multiple systems," he explained. "On that robot in there, there's four companies we buy parts from, so it's not just a cookie-cutter deal. None of the screw holes match up. They all use a different size screw, so you may have to drill some things or cut some things. It is more of a challenge."

"It's trial by fire," Bryant said. "The middle school team is kind of doing it on their own."

"As a rookie team, you end up putting a lot of things together wrong," Bryant said. "You might have great ideas, but you'll put them together wrong, and then something breaks or wears or squeaks real loud because you didn't put a bearing on it...and then we come back, and we'll teach reverse engineering."

However, those same rookies earned second place for Innovation in their competition—based, in part, on the merits of the design/build, but also for a motor tester Tate Wilhelm built inside of the program." Instead of building a program to test your motors every time," Bryant said, "he had it in the program. I thought it was kind of genius." Canadian competes against 36 other schools in its own district—from those as small as Nazareth and Kelton to 4A and 5A schools like Randall and Plainview. "Our district is loaded," Bryant said. "Since they started this, the state champion has come from our district every year."



A close-up of the high school team's creation reveals the myriad of materials and devices they have used to build a robot that can locate the discs, pick them up, and launch them accurately at the target, while also grasping and lifting the blue wobble, shown on facing page, in the end game.

Before he began working with the Robotics program, Bryant had primarily taught social studies and history, and coached for 17 years. For the last eight years, he served as Canadian Middle School principal. But when the district turned its focus to developing a STEM (science, technology, engineering, and mathematics) program, Bryant saw it as an opportunity.

"I took a big leap of faith and jumped out there," he said.

"It is a different type of energy," Bryant said. "Where I provide guidance and my knowledge of things—the engineering and the math part of it—these kids find other ways. I can show them the basic way to develop a mechanical robotic arm and can even build a prototype for them, but until they get in there and build it themselves, they don't get it."

"It's the hands-on realism of holding those parts and putting them together and finding a way to make it work," he said.

Although the team is limited to seven or eight members, Bryant said there is a place for every kid. "You have kids that are great in math that can't build anything," he said. "You have to coach them differently. But also, to do this, you have to be very self-motivated."

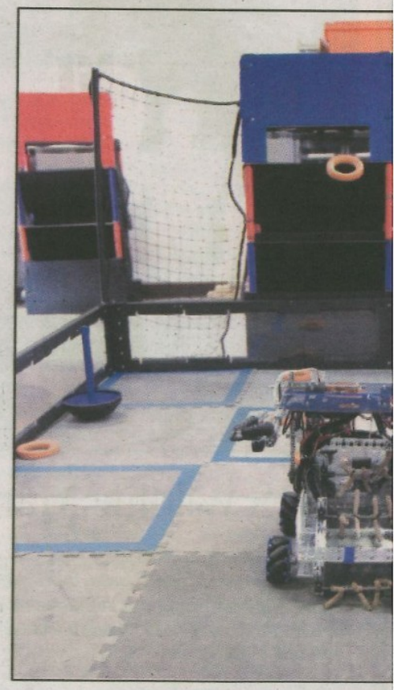
That self-motivation is apparent. Within a minute of their arrival for first period, his students have tools and notebooks in hand and have already begun their work. Bryant said they will likely be tweaking their robot right up until the final seconds before Saturday's remote competition begins.

In the next couple of days, they plan on reprogramming two servos and changing the motor description in their program. "The new motor is going to be a little bit faster," he said. "It will run like crazy now, and it's a lot smoother."

Bryant said he hopes that as the program grows, they can recruit more students and attract more sponsorships from the community, to help offset the costs. "We have a large number of kids who want to come in next year, but it's an expensive program for the school," he said.

"It's been a great deal for the kids, though," he said. "I was nervous stepping in here, but I know how to teach, and I know what to expect out of the kids. I know where our program was and where we want it to go. These kids have worked hard to move ahead. It is a blessing to work with them."

THE CMS DEATH STAR ROBOT DESIGNE Walser; and (front row) Ethan Gerhardt, Izabell



This robot designed by the Middle School team discs and accurately finds the target with each on

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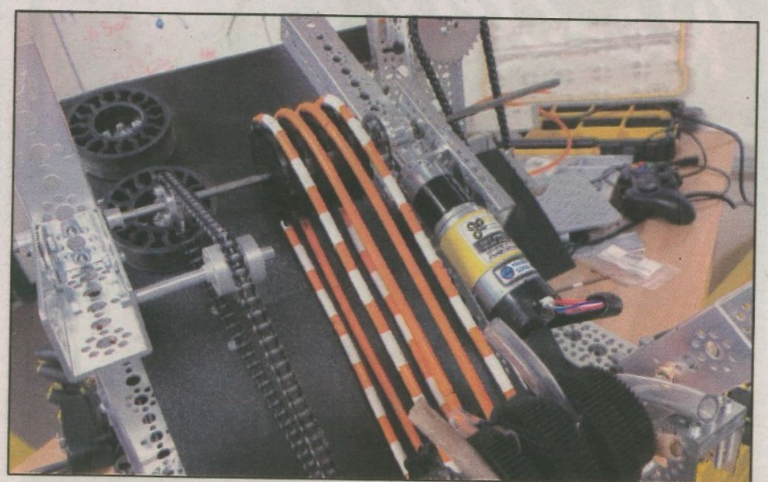

competitive stride in program's second year

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THE CMS DEATH STAR ROBOT DESIGNERS: (Back) Tate Wilhelm, Dakota Harris, Lilly Bradford, Maggie Hanes, Kenzie Flowers & Cole Walser; and (front row) Ethan Gerhardt, Izabell Flores, Miley McLanahan, Collier Cook & Brianna Antillon.