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CHIPPEWA VALLEY SCHOOLS

MORE THAN MACHINES

How CVS students are preparing for the future

By Dean Sabelhaus

Walk into Mr. Jomo Walker's Mechatronics lab at Dakota High School and you will quickly discover that this is not a class where students simply sit and listen.

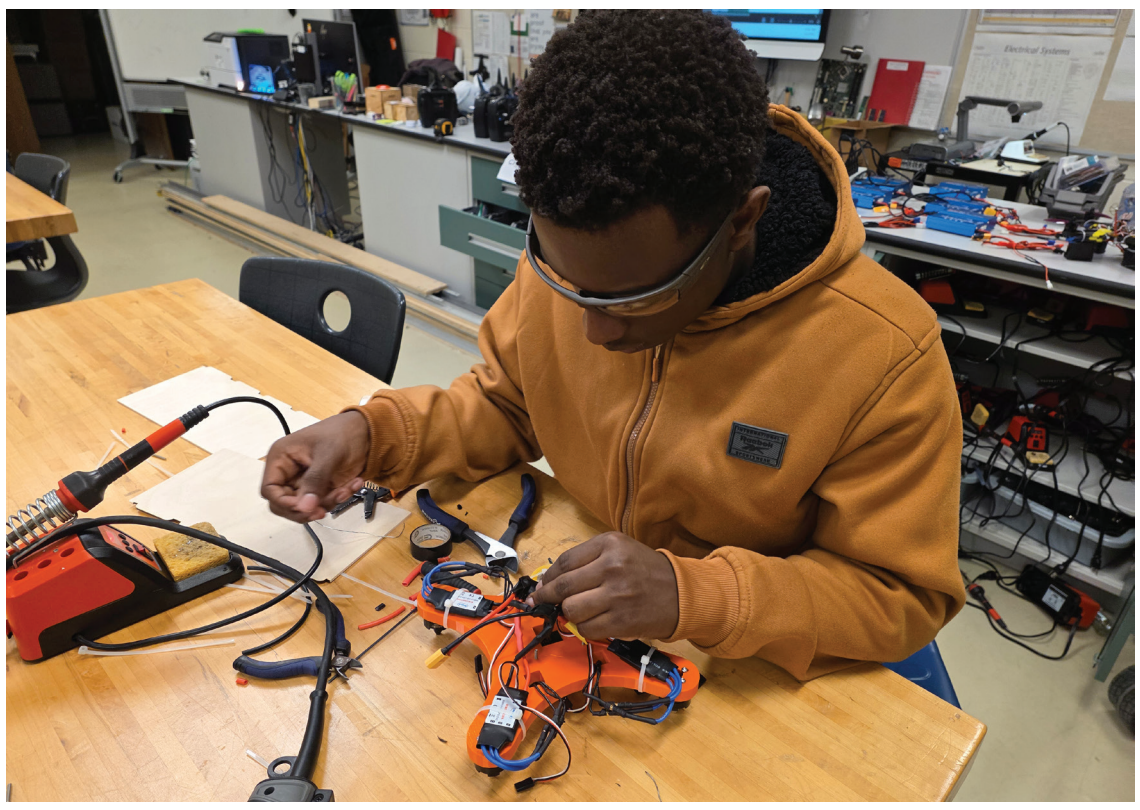
They build, test, troubleshoot, and learn from their mistakes.

The field of Mechatronics combines mechanical systems and electronics, with a strong emphasis on robotics, automation and how technology works together. For Walker's Mechatronics class, though, it is about more than technical skills. It is about teaching students how to think, solve problems, and become comfortable with technology.

"I fully believe in students working with their hands," says Walker. "The majority of student projects involve them building something." Students build LED signs, miniature robotic arms, drones, and remote-controlled vehicles, all while developing skills in robotics, automation, CAD, and electronics. They learn through designing, building, testing, and troubleshooting — often discovering that a failed attempt can be just as valuable as a successful one.

"Students learn that it is OK to make mistakes," Walker says. "Mistakes are the best teachers."

The hands-on nature of the program has been especially beneficial for students who may struggle in traditional classroom environments. Having "opportunities to move, build, experiment and troubleshoot can help reduce anxiety and build confidence," says Walker.



Building a drone. **PHOTOS COURTESY OF CHIPPEWA VALLEY SCHOOLS**

Walker's interest in Mechatronics began when he was young.

"I have been playing around with electronics since I was a child," he said. "I enjoyed taking apart my electronic toys to see how they worked and then put them back together again." That curiosity eventually led him toward electronic and mechanical fields and education.

Walker was already teaching Mechanical Design and CAD when school leaders recognized his aptitude and approached him about teaching a Mechatronics program and he accepted the challenge. Walker has been teaching for 27 years, including 11 years with Chippewa Valley Schools.

He structures his classes around safety, creativity, and hands-on learning. Students work in two classrooms, one focused on laboratory and building activities and another for studying and developing projects.

Along the way, they develop technical skills as well as communication, teamwork, creativity, and time-management skills. Walker also incorporates applied mathematics, CAD, and the history of technology into his lessons.

Industry connections are another important part of the program.

Walker's program advisory board includes professionals from companies such as KUKA and General Motors, along with other industry representatives. The advisory board provides insight into emerging technologies and the skills students should develop before entering college or the workforce. They also make recommendations for equipment purchases, serve as guest speakers, and provide job-shadow opportunities for students.

That industry focus is also reflected in the credentials students earn. Every student who completes the Mechatronics program earns the industry-recognized FANUC Level 1 Robotics credential, giving students a valuable certification that demonstrates foundational knowledge and skills in industrial robotics. The credential provides students with a "leg up" as they further their education and establish careers in advanced manufacturing and automation.

Walker also stays connected with former students to learn what skills they are using in their careers and what new technologies should be introduced into the classroom. The results can be seen in the success of his graduates.

Two former students, Casey and Sam, took Walker's Mechatronics class four years ago, attended Michigan State University together, and both graduated this year with engineering degrees. Sam is now working at KUKA, a global robotics and automation company.

Another former student, Hailey, graduated eight years ago and used her Mechatronics experience to become a 2M technician in the U.S. Navy, repairing circuit boards. She now works for SpaceX on circuit boards associated with Starlink satellites. These individuals are just a sample of the incredible successes Walker's former students are experiencing in the world.

Walker believes Mechatronics will become increasingly important as artificial intelligence and connected technology become part of everyday life.

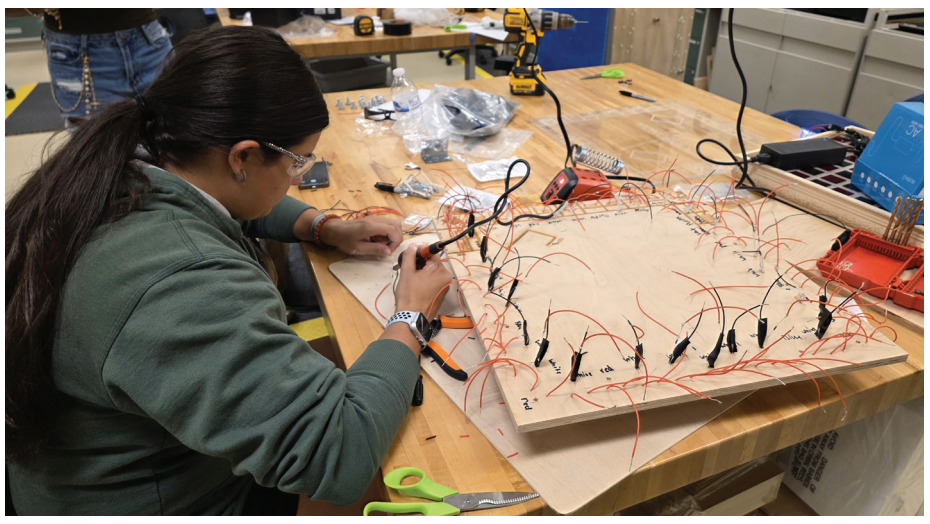
"Our homes, cars, audio speakers, and more are now networked and becoming AI-driven," he said. "In the Metro Detroit area, we all, at some point, knew someone who could fix a car. Who do we know that can fix our AI homes, AI-connected cars, etc.?" Walker believes today's students will become the people who fill that need.

"That someone could be your child," he said. "The technology itself is not the future. Your child's ability to use and fix it is."

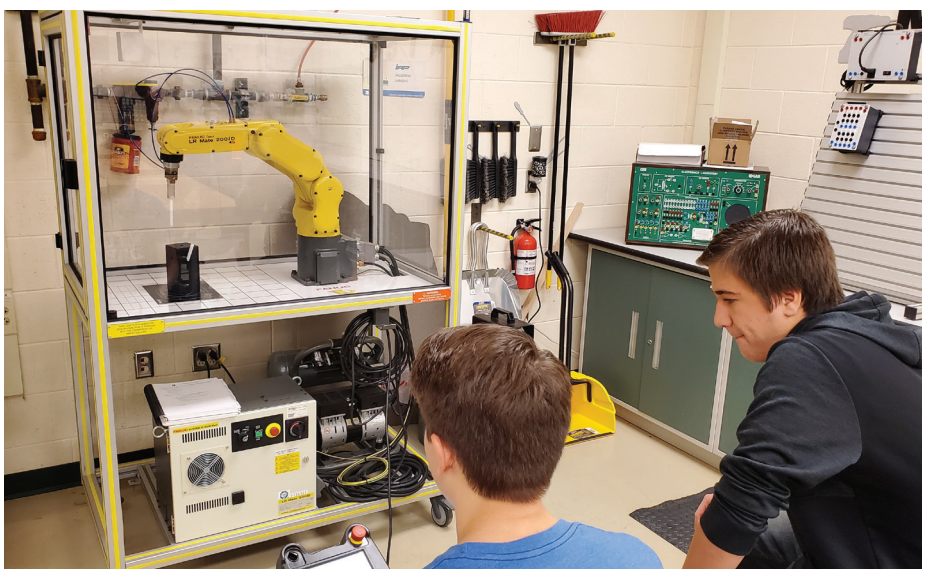
Looking ahead, Walker hopes to expand the program and give students opportunities to work with more advanced robotics, including humanoid robots and quadruped, or robotic dog technology.

His message to students who may be hesitant to try Mechatronics is simple: "The class is not as complicated as you think it might be. Technology is changing, and how you learn it is changing too. Try it. You will be surprised."

For Walker, the greatest reward is watching students discover what they are capable of — and seeing them grow into the people who will build, maintain, and shape the technology of tomorrow.



Advanced circuitry wiring.



Programming the robotic arm.

Testing the student-built driving simulator.

"Proud builder of an electric skateboard."

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