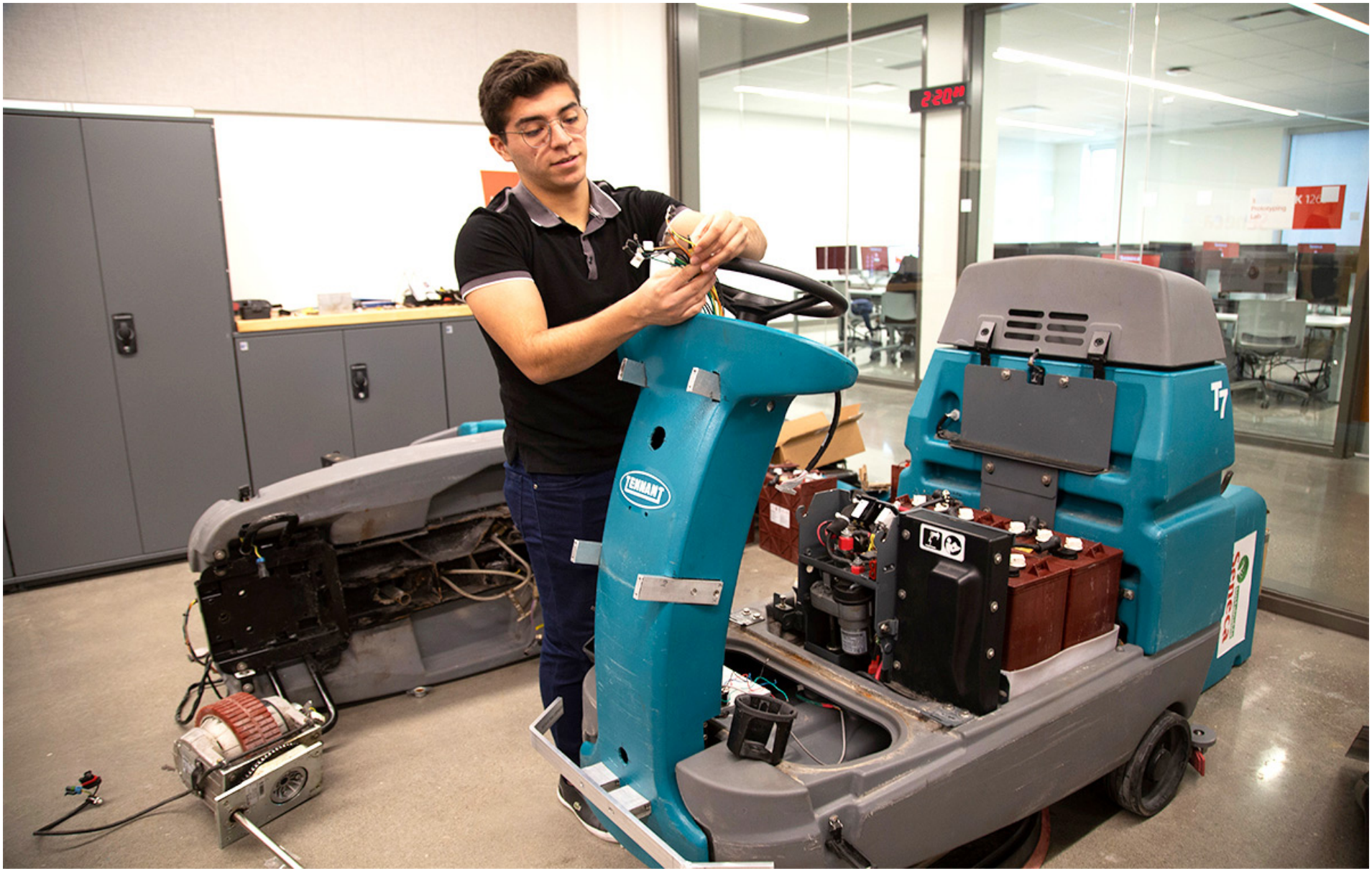

Juan Vanegas Maya, a student in the Electronics Engineering Technology advanced diploma program, works on the robotic floor cleaner at Seneca's Applied Research Garage.

Robotic floor cleaner soon to drive itself at Seneca

Applied research project connects students with industry

Jan. 23, 2020

An applied research project at Seneca has turned an aging floor cleaner into a self-driving robotic prototype, soon to be tested at Newnham Campus.

The project is a collaboration between Seneca's Applied Research, Innovation & Entrepreneurship (ARIE) (https://www.senecacollege.ca/research/), the School of Electronics & Mechanical Engineering Technology (/school/electronics-and-mechanical-engineering-technology.html), Sustainable Seneca (/about/sustainability.html) and Cyberworks Robotics, a company specializing in artificial intelligence (AI) self-driving technology.

"Cyberworks brought the project to us because the School of Electronics & Mechanical Engineering Technology has the expertise that's needed for it," said Andrew Paton, Research Manager, Applied Research, ARIE.

Thanks to Don Forster, Senior Manager, Environmental, Groundskeeping, Custodial & Support Services, who offered one of Seneca's aging floor cleaners to be retrofitted while handing over another defunct machine for the students to play with, the project took off last fall in the Applied Research Garage at the Centre for Innovation, Technology & Entrepreneurship.

Working under the expert guidance of professors Ali Taha and Alex Sochaniwskyj, a team of Seneca students and graduates is transforming the old, manually operated industrial floor cleaner into a robotic machine using a kit they developed in close co-ordination with Cyberworks Robotics. Unlike a fully automated floor-cleaning robotic machine, which is prohibitively expensive, the prototype developed at Seneca will have significant cost savings.

Juan Vanegas Maya, a student in the Electronics Engineering Technology advanced diploma program (/programs/fulltime/EET.html), has been busy fine-tuning the prototype's electrical components.

"I have done several jobs in the past but this project is giving me a chance to work with an industry partner and co-ordinate with the other teams involved in building the prototype. It's all very exciting," he said.

Quang Vu Bui, a recent graduate of the Mechanical Engineering Technician (Tool Design) diploma program (/programs/fulltime/MATD.html), is working on the mechanical part of the project and happy to have the opportunity to apply the skills he has learned at Seneca to an actual job.

“It starts with planning, design, machine modification and testing,” Mr. Bui said. “I enjoy working with professors and other students and graduates who are extremely knowledgeable and professional. I have learned so many things from other fields through this experience and that’s really useful.”

While the project provided students and graduates with practical experience and taught them how to collaborate with industry, Mr. Sochaniwskyj said the opposite is also true.

“Such projects expose industry to the type of students we have, the skills that we teach and, hopefully, it spurs the industry to hire our students,” he said. “It also gives the professors an opportunity to see what is going on in the industry. That helps us tailor our teaching to the technology that’s out there in the real world.”