

Mechatronics Students Build Lift Robot



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On June 11, students Elijah Wolfe, Ryker Stuart, Kaneda Zeober-Hallman, and Josh Olsen presented their Mechatronics capstone to their faculty at the Columbia Tech Center. Their mission was to design and build a lift robot that could automate physically straining tasks, thus improving efficiency and safety in the warehouse and shipping industries.

Inspired by the robots used by companies like Amazon, the students spent about 10 weeks designing, testing, and refining their robot. They tested four prototypes in total, identifying weaknesses and finding solutions with each step, such as implementing safety and stability features. The final robot could lift 20 pounds, an impressive feat from only a seven-pound machine.

Each student took ownership of a different aspect of the robot's production. Josh, who spearheaded the programming elements, credited his Robotics classes at Clark for giving him the knowledge needed for this project. For Ryker, who led the design process, this program provided him with in-depth knowledge that he can apply to real life, like when he's volunteering with his local high school's Robotics club.

The team approached this project as a business, always considering what a company might need for this to be implemented. By setting specific objectives – like providing training to a customer's employees and monitoring a reduction in workplace injuries – they were able to monitor their progress and evaluate the project's impact.

When addressing some of the changes they made, Ryker pointed

out that it was initially “too robotic” in its movements, causing him to smile at the irony. “We wanted it to be smoother,” he clarified.

Of course, no Mechatronics presentation would be complete without a live demo. With a handheld controller, the team demonstrated their robot’s smooth navigation across the room and its ability to lift and carry 20-pound weights.



Students watch as the robot they built lifts 20 pounds in a live demonstration of their work.

The students had to be organized from the get-go, Mechanics Professor Doug Miller explained. Since the wiring was encased in a transparent box, every piece they used would be visible. This means the team had to take appropriate steps to ensure their robot not only worked properly but also looked professional.

Professor Doug Miller praised his students’ teamwork, professionalism, and persistence. “I was impressed with the mechanisms of lifting the top and the phases they presented at each stage,” he shared with the audience. “If something didn’t work, they pivoted and tackled it.”

Mechatronics at Clark College

Mechatronics is a two-year program, combining skills from multiple engineering disciplines. Courses emphasize current concepts and technology by providing practical, hands-on experience with the latest industry standard equipment. Mechatronic Technicians can be found in a variety of fields, including aerospace, transportation, plastics production, and computer manufacturing.

Learn more on the Mechatronics page of the Clark website.

Photos: Clark College/Malena Goerl