REDUCING WEAR ON CUTTING-TOOL TECHNOLOGIES

INDUSTRY CONTACT
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BACKGROUND
Durmach provides production machining, custom design and fabrication work including pneumatics, hydraulics and electrical, tools, dies, jigs and specialty fixtures. Durmach wanted to reduce chatter on its cutting-tool technologies to help it access specific markets and have its machinery last longer. The vibration of cutting tools eventually causes machinery to make less accurate and noisy cuts.

A UOIT research team, comprised of four undergraduate students, two master’s students and one PhD student, had to come up with measuring technologies and develop a way to monitor the roughness of the cutting tool through sound and frequency of vibration.

The students designed a free-mass damper to increase the life of the cutting tool, reduce chatter and improve the precision.

OUTCOMES
The use of the damper has increased productivity for Durmach and allowed the company to compete in new markets where precision is in critical demand. It was an invaluable research project for UOIT students as they applied theory and concepts to meet industry needs, an opportunity made available by the ARC Initiative. UOIT now has the technology to measure similar tools for future research and projects.

ABOUT FEDDEV ONTARIO
The Federal Economic Development Agency for Southern Ontario (FedDev Ontario) was created as part of Canada’s Economic Action Plan to support businesses and communities in southern Ontario as part of the Applied Research and Commercialization (ARC) Initiative. ARC is a pilot program designed to address the gap between small- and medium-size enterprises and post-secondary institutions. Launched in 2010, ARC’s goal is to accelerate innovation, improve productivity, create jobs and contribute to the creation of globally competitive Ontario companies with fewer than 1,000 employees.

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