

Testing, Testing . . .

Engineering student is first undergraduate to apply for a patent through U of G

BY ANDREW VOWLES

The call from a U of G inventor early this year caught Patricia Power somewhat by surprise. Not that the call itself was unusual. As intellectual property manager for the Business Development Office in U of G's Office of Research, Power helps faculty from across campus file an average of one or two patent applications a month. But this time, the caller was not a faculty member but a second-year undergraduate student in the School of Engineering.

By the end of February, Power had filed an application with the Canadian Patent Office to protect a concept developed by engineering systems and computing student [Graham Nasby](#), the first undergraduate to apply for a patent through U of G.

With his idea potentially protected by the application, he has until next February to develop a prototype of his invention - a design for improved protective circuitry to replace cumbersome fuses in electrical testing equipment.

Nasby believes his idea will attract interest from makers of meters used in everything from checking basement fuse panels to testing large industrial machinery. The worldwide market for electrical testing devices is estimated to be worth \$2 billion a year.

Nasby's idea is an attempt to correct what he sees as a fundamental design flaw in meters. These devices come equipped with fuses designed to blow at threshold voltages, a safety measure that prevents the instruments from frying under excessive jolts of electricity. That's a great failsafe for protecting the tester itself, he says, but it doesn't do much for the worker with a "zero" reading on the instrument. Which is dead: your meter or the electrical system you're testing?

Guessing incorrectly could mean a nasty jolt for a hobbyist in a basement workshop or a technician at a university lab bench. For an industrial electrician working on a huge piece of equipment, the consequences could be far worse. At best, the electrician would have to postpone the job until the tester itself could be tested. Meter failure happens fairly often, says Nasby, adding that "if I was an electrician, I would rather be concerned about doing the job than whether the meter was working."

He began considering the idea a couple of years ago after he had turned his boyhood penchant for tinkering - which included rewiring the family sailboat - into a marine electrical business in Penetanguishene. After one episode with an unresponsive tester, he began looking for a meter without fuses.

After learning that no such instrument existed, he sketched out a design for circuitry that meter manufacturers could use to improve the safety and reliability of testing equipment. Needing help in patenting his invention, he contacted U of G's Office of Research early this year. Normally, the filing process takes about a month and a half. But with only a week to go before Nasby planned to present his idea at a provincial engineering competition, Power's office had to scramble to file the application.

Nasby will spend the summer developing the prototype to gain full patent protection by year's end (inventors have a year from the date of application to complete their prototypes and requisite documentation). Power's office will look at the prototype, seek professional advice on its feasibility and do an extensive literature search on its patent and market potential before updating the Canadian patent application or filing for further protection abroad.

Under U of G's invention policy, Guelph University Alumni Research and Development (GUARD) - a corporation set up to commercialize research ideas - has 60 days to take up the option on a patented invention. If GUARD declines the option, the University will either pursue the idea or sign the option back to Nasby.

U of G might consider licensing the technology to instrument

manufacturers or perhaps setting up a spinoff company to develop the idea. Royalties from eventual use of the invention would be shared by the University and Nasby, although neither he nor Power knows how much his concept might be worth.

Nasby says he's surprised that no one had come up with his concept before now, especially meter manufacturers themselves. Says Power: "Sometimes the most obvious things are the patents that are going to make the most money."

Although he developed the invention strictly in his spare time, the concept intersects with the student's interest in system design and interaction. "I'm interested in learning why something works, its history, how they came to it," he says. He believes equipment or system failure often stems from poor design. "A well-designed system or piece of equipment should be easy to use," says Nasby, who tries to practise that principle as a part-time Web page designer.

This summer, he will begin the first work placement of his five-year co-op program. After completing his degree, he might pursue systems engineering at the graduate level, then consider a career in industrial design or public relations. "He's obviously a bright student," says Power. "He's had experience in using this equipment in a commercial setting."

Turning to instruments of a different sort, Nasby is also considering completing a minor in music. An accomplished clarinetist, he is concertmaster of both the U of G Concert Winds and the Guelph Concert Band and has played recorder with the University's Early Music Ensemble. Occasionally, he lays aside the clarinet for choral singing, as in a recent concert at the Macdonald Stewart Art Centre, where his mother, Judy, is director.