Canadian Intellectual Property Office

An Agency of Industry Canada

Office de la propriété intellectuelle du Canada

Un organisme d'Industrie Canada

SAMANTHA CHANG

Case Study

PATENTS INDUSTRIAL DESIGNS COPYRIGHTS TRADE-MARKS

Canada

CIPO OPIC

Acknowledgements

The Canadian Intellectual Property Office would like to recognize and thank McMaster University and the members of the Advisory Development Team who participated to the project:

Marc Banik
Professor, Département de management et technologie
University of Quebec at Montreal

Nick Bontis
Associate Professor, DeGroote School of Business
McMaster University

Eric Brown
Professor, Biochemistry and Biomedical Sciences
McMaster University

Tom Corr
Associate Vice President, Commercialization, Office of Research
University of Waterloo

Scott Inwood
Director, IP Management Group, Office of Research
University of Waterloo

Cheryl Jensen
Vice President, Technology, Apprenticeship and Corporate Training
Mohawk College

David Jones
Assistant Professor, Electrical and Computer Engineering
McMaster University

Rafik Loutfy
Professor, Chemical Engineering
McMaster University

Christopher J. McKenna
Dean, College of Management and Economics
University of Guelph

Marcel Mongeon
Project Manager
Mongeon Consulting Inc.

Elsie Quaite-Randall
Executive Director, Industry Liaison Office
McMaster University

Permission to reproduce or use

Catalogue No. Iu71-4/12-2-2012E
ISBN 978-1-100-21093-3
Revised edition: August 2012

Samantha Chang

Who owns the invention?

Samantha Chang was really excited about what she had been able to achieve. Even though she was just starting an engineering program at Provincial Technical University (PTU) in the fall, and had only just turned 18 in March, she was working for the summer in an engineering research laboratory at the university.

It was the end of August and Samantha had just received significant praise from the principal researcher of the laboratory, Professor John Milbourne. Specifically, Milbourne congratulated her on an idea she had provided for a project that the lab was doing for AutoPartsCo.

Samantha Chang was really excited about what she had been able to achieve. Even though she was just starting an **engineering program** at Provincial Technical University (PTU) in the fall, and had only just turned 18 in March, **she was working for the summer in an engineering research laboratory** at the university.

AutoPartsCo was a two-tier automobile parts supplier who, a few years ago, engaged Professor Milbourne's lab to help them with a problem that they were having in making the cooling fans for smaller engines. The problem was related to the machining of the fan. Because these fans had to run at high speeds, it was important that their machining leave no extra material including small parts that might be difficult to detect by eye.

The challenge was that although AutoPartsCo had a high level of automation in its production process it was having difficulty in implementing machine vision techniques to monitor the quality of the finished product. In large part, the difficulty was because AutoPartsCo did not have the internal expertise as it was expanding its business. It was like many similar companies: it had been started by an entrepreneur with a simple machine shop style background but had quickly grown to its present size. Along the way, the company had developed significant expertise in automation techniques but for some reason, they had never acquired the expertise in automated imaging which would help it monitor the quality of finished products.

AutoPartsCo solved this lack of expertise by engaging PTU and Professor Milbourne. The relationship had been a very positive one. Milbourne acted as AutoPartsCo's virtual research and development department.

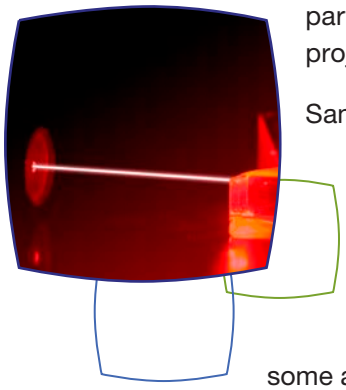
NOTE: The facts described in this teaching case are fictional and not based on any true case. Although the principles relating to patents are correct, references to particular companies and processes are purely fictitious and should not be relied on as actual engineering or manufacturing processes.

Samantha had shown a **keen interest** in optic devices. Even at an early age, she was **fascinated** by telescopes and cameras.

AutoPartsCo had been generous financially to both Professor Milbourne's lab as well as to other engineering programs in general. In fact, the owner of AutoPartsCo had recently made a significant donation towards the construction of a new engineering student centre.

Samantha had shown a keen interest in optic devices. Even at an early age, she was fascinated by telescopes and cameras.

She took apart an old instamatic camera at the age of five, just to see how it worked. As she got older, her fascination grew, and her projects got bigger. From grade six onward, Samantha participated in the city and provincial science competitions every year; her science projects always had something to do with optics and light.



Samantha's involvement in professor Milbourne's lab was due, in part, because of her interest in optical engineering and, in part, because of the friendship between her mother and Professor Milbourne. Samantha's mother was a professor of history at PTU and she and Milbourne had worked on a number of administrative committees together and became close friends. When Samantha told her mother that she wanted to go to PTU's engineering school, her mother suggested that she give Professor Milbourne a call to get some advice.

Because Samantha lived close to the PTU campus, one day in March she actually went to visit Professor Milbourne. He was quite impressed with her enthusiasm for engineering. She was interested in the work that was being done in his laboratory.

There was **no written document** relating to Samantha's work. She was just paid as a **casual worker** and as such, wouldn't show up on anyone's system as an employee.

Professor Milbourne decided that he would give Samantha a chance to work in his lab, even though he never hired anyone less than a third year student. They agreed that Samantha could start coming into the lab two afternoons a week and, when her summer break started in June, she could come into the lab on a full-time basis. He would pay her ten dollars per hour that he would take from the research money he had available.

There was no written document relating to Samantha's work. She was just paid as a casual worker and as such, wouldn't show up on anyone's system as an employee.

Samantha had no specific assigned duties around the lab. Rather she was used by the lab staff as a general gopher and assistant for various types of tasks. She might collate information one day, proofread a report the next, or help one of the researchers at a lab bench

the third day. Samantha didn't mind that she wasn't really "hands on" with the research; she was just happy to have the exposure to the lab.

There was an extensive staff in the lab comprising one research engineer, three full-time research technicians, two Ph.D. students, six Masters students and two undergraduate students all working on various projects related to process control. About 40% of the lab's work was on AutoPartsCo's projects and the rest was on other process control projects sponsored by other companies and the National Sciences and Engineering Research Council (NSERC). The lab had access to some of the best equipment available in the field and specialized in high throughput imaging of production processes. To support this work, the lab had extensive devices and software.

Part of Samantha's work was to keep track of where the various imaging devices were being used and to help people find devices that they wanted to use. Over the summer she had become familiar with all of the devices, how they operated and what their characteristics were.

At the beginning of August, Samantha had used her specialized knowledge about the imaging devices to help advance a project dramatically.

At the beginning of August, Samantha had used her **specialized knowledge** about the imaging devices to help **advance a project dramatically**.

The project was to determine if, after the automated machining of a fan assembly, any burrs on the edges of the machined blades could be detected. The problem was difficult because a burr of as small as 0.5 mm could affect the performance of the fan and there was only about a 20 second period of time that imaging data could be assembled for each machined part.

The research engineers in the lab had tried a number of different options but had not yet succeeded in finding a reasonable solution. The challenge was that in order to ensure accurate detection when there was a burr without generating any false positives, the imaging device had to have a high enough resolution at an infrared light frequency that just didn't seem to work properly. All of the solutions attempted were generating an unacceptable level of false positives: identifying a part that wasn't bad as such.

Samantha's solution was relatively simple and was likely a result of her relative naiveté in the field. She asked why the imaging had to be done in infrared light. She knew that there were a number of devices in storage that were tuned to visible red light such as that produced by a laser pointer (650 nm in wavelength). Such light could be generated in a much narrower band than the infrared light being used and there was one particular imaging device that would respond well to the narrow band.

As a result of **Samantha's simple suggestion**, the false positive problem was eliminated. It only took a few days to **implement the solution** on AutoPartsCo's production lines.

As a result of Samantha's simple suggestion, the false positive problem was eliminated. It only took a few days to implement the solution on AutoPartsCo's production lines.

They were thrilled with the new system and, because there were a number of other automobile parts manufacturers who were encountering the same problem, AutoPartsCo wanted to file a patent as quickly as possible on the invention.

That was why Professor Milbourne had called Samantha into his office: he wanted to congratulate her and tell her she would be named as an inventor on the patent application (the invention seemed to meet the tests of novelty, utility and ingenuity used to determine patentability). Samantha was thrilled — not a lot of students of her age get to be named as an inventor on a legitimate manufacturing innovation.

Of course she told her mother the exciting news. Her mother was very proud of Samantha and told some of her colleagues at the faculty club the next day about her daughter's achievement.

Within a week of the meeting with Professor Milbourne, Samantha was wondering what she had gotten herself into. PTU's research administration office started looking into how the patent would be filed for AutoPartsCo.

The agreement with AutoPartsCo said that all inventions made by the PTU and Professor Milbourne's lab during the course of the project would be owned by PTU and a royalty-free licence given to AutoPartsCo.

PTU also had a policy in place relating to intellectual property created under a research contract such as this one. It said that any invention made by a graduate student or full-time employee of PTU would be owned by PTU. However, it was not clear whether or not Samantha was included in this policy.

The agreement with AutoPartsCo said **that all inventions made by the PTU** and Professor Milbourne's lab during the course of the project would be owned by PTU and a **royalty-free licence** given to AutoPartsCo.

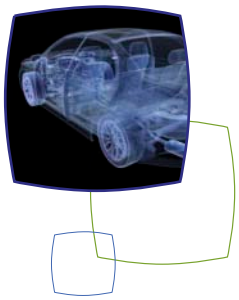
The research administration office sent someone with documents for Samantha to sign that would transfer her rights to PTU. She pointed out that she had only just turned 18 in March and did not feel comfortable signing a document she did not fully understand. She wanted to talk it over with her mother. The person who had been sent to meet her became a little impatient and wondered why Samantha couldn't just sign everything so the research administration office could start the patenting process.

DISCUSSION QUESTIONS

1. What rights does a patent give?
2. Is Samantha's idea a patentable invention since it is using existing technology?
3. What impact does Samantha telling her mother about being named as inventor have on the patentability of the invention? What steps should she take to protect her interests in the invention when discussing it with others?
4. Assuming that Samantha transfers her rights to PTU, what steps would the research administration office take to secure patent rights over the invention?
5. If Samantha's invention is not patentable, in what other ways could she protect her idea?
6. Who owns the invention if Samantha does sign? If she doesn't sign, who owns the invention?
7. If one of the graduate students in the lab had made the discovery, would the same issues of ownership arise? Who would own the invention?
8. What rights does AutoPartsCo have to the invention?
9. If you were advising Samantha, what points would you suggest she consider in deciding whether to transfer her rights to PTU?

GUIDELINES FOR PREPARING TO DISCUSS THIS CASE

The objective of this teaching case is to answer the questions that are asked and, in the process, learn about intellectual property in general. All students will be expected to participate in the class discussion, and so will have conducted additional research on the topics and points raised. To get started, you can review the presentation *Introduction to Intellectual Property* at www.cipo.ic.gc.ca/introip, and the IP PANORAMA™ [1] modules 03, 04, 06 and 07 at www.ippanorama.com. Other useful websites are also mentioned at the end of this section.



An important aspect of using a case study is to identify the different issues that are raised. Are there other questions that you think should also be asked or other information you should have before you can answer?

When you have identified the relevant issues, assemble the required information. For example, in answering the question in this case about whether Samantha's discovery is really a patentable invention, you will need to consider if it meets the tests of novelty, utility and ingenuity. Plus, you will need to give careful consideration to the concept of WHO owns the idea/invention since there are a lot of parties involved.

You may want to obtain your own university's or college's policy on intellectual property to help understand some of the issues of research and IP ownership in a post-secondary institution.

[1] IP PANORAMA™ is a user-friendly e-learning product on intellectual property that was jointly developed by the Korean Intellectual Property Office (KIPO), the Korea Invention Promotion Association (KIPA), and the World Intellectual Property Organization (WIPO).

Ultimately in a case like this, you need to decide on what you believe is the best course of action and why. Be prepared to defend your choices with relevant facts and information.

USEFUL WEBSITES

Canadian Intellectual Property Office

- www.cipo.ic.gc.ca

US Patent and Trademark Office

- www.uspto.gov

European Patent Office

- www.epo.org/searching

World Intellectual Property Organization

- www.wipo.int

Canadian information on patents

- www.jurisdiction.com

You can also search relevant terms in general Internet search engines.