Talking Technology
Tracking everything that moves

By Steve Burns, Capital News contributor

So far in our series on breakthrough technologies, we have looked at fuel cell technology and video conferencing technology, both of which are revolutionizing how we live and work.

This week we are looking at radio frequency identification (i.e. RFID) as a technology that is transforming how we track physical goods.

RFID tags are miniscule microchips, which already have shrunk to half the size of a grain of sand.

They listen for a radio query and respond by transmitting their unique ID code or serial number that has the ability to track the movement of every product manufactured around the world.

The most common applications for RFID technology are tracking goods in the supply chain, tracking assets, tracking parts moving to a manufacturing production line, controlling access to buildings and networks and payment systems that let customers pay for items without using cash.

RFID is a proven technology that has been around since the Second World War.

However, until recently, the technology has been too expensive and too limited to be practical for many commercial applications.

However, RFID tags can cost as little as 30 cents or as much as $100 for an active tag with a sophisticated sensor and a battery.

An active tag is used to track high value goods by using microchip circuitry to broadcast a signal to a reader and has a read range of 100 feet or more.

In contrast, passive tags have no battery as they draw power from the reader, which sends out electromagnetic waves that induce a current in the tag's antenna.

Their read range is usually less than 10 feet but they are far less expensive and require no maintenance.

RFID tags are used to provide information about what a product is, where it is located now, where it has been and how it has been handled.

For instance, an RFID tag reader in a warehouse, truck or store can "query" all of the smart tags in its vicinity, taking inventory without human assistance.

RFID tags are also being used in refrigerated containers to make sure that food is stored at the right temperature.

Grocery stores are using the technology to track the temperature of certain foods to prove when in the transportation system the food was spoiled.

If the grocery store can prove that the food was spoiled prior to arriving at their store due to a drop in storage temperature while the food was being transported, they no longer need to absorb the loss.

As the price of an RFID tag has dropped, the number of potential applications has increased exponentially.

For instance, the Telecom industry in Europe has now formed a strategic alliance to further assess the market potential of RFID tags on its business.

Telecom providers in Europe recognize that with low-cost RFID technology, every simple object can now potentially trigger telecommunication processes, which could radically alter the landscape of telecommunications forever.

Last year industry experts predicted that by 2010 RFID technology would become ubiquitous.

As with most industry predictions, the forecast seemed aggressive if not unattainable.

However, the industry experts may have missed the mark by not predicting a faster adoption curve for RFID technology.

For instance, Wal Mart has already announced that it is going to require that its top 100 suppliers deliver RFID tagged products by 2005.

By the end of 2006, that requirement will be extended to all of their products.

Last month, the Pentagon announced plans to ask its top 100 suppliers to put RFID tags on pallets, cases and big-ticket items, which could begin in 2005.

You know that a technology could be a breakthrough when you start having big names show up to the table.

Texas Instruments is becoming a major market player and recently assisted the U.S. Department of Defense on a Navy hospital ship to use RFID tags to track the location and triage status of injured soldiers.

Sun Microsystems has jumped into the business, which includes over a dozen publically traded companies. Gillette uses the tags to track cartons of Venus women's razors through a packaging and distribution centre in Massachusetts and has indicated that they will buy as many as a half-billion tags over the next two or three years.

The tags could also tell retailers how many cans of its shaving cream sit on their shelves at any given moment.

Seven million tags are already attached to the keychains of drivers who pay for their gas with ExxonMobil's SpeedPass system.

There are issues that are being raised about the privacy issues associated with RFID technology.

For instance, this past weekend the Massachusetts Institute of Technology (MIT) held a conference solely on the privacy issues surrounding how RFID technology will be used (www.rfidprivacy.org).

The conference addressed everything from how RFID may conflict with new privacy legislation in Canada and the U.S.

It was mainly focused on the retail industry, where giants like Wal-Mart are planning to use RFID tags to track people in their stores.

By combining the radio tag data with credit and customer loyalty-card information, they are creating detailed profiles of their customers.

Were you aware that one of the world's leading RFID companies is located right here in Kelowna?

Identec Solutions (www.identecsolutions.com) is located on Dayton Road in Kelowna and recently partnered on a pilot project with Nokia to use Identec's Intelligent Long Range active RFID technology in combination with a Global Positioning System (GPS) to track the movement of cell phones from the manufacturing facility to the retailer.

Next week we will go inside Identec Solutions Inc. to visit with president and chief executive officer John Kingsmill for a closer look at what RFID projects the company is working on and what market opportunities they envision.

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