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RFID Generates Lots of Interest from Users and the RF Industry

Gary Breed
Editorial Director

This issue's tutorial article features RFID (RF Identification), one of the promising industry segments for the RF industry. Users are excited too, since many of the "new" applications were envisioned some 40 years ago! As the authors point out, the current interest in RFID follows from the recent wireless revolution, where progress in design techniques, components and cost have created an environment where "we can do anything wireless." RFID is finally able to achieve what was not technically feasible just a few years ago.

Some of the most experienced users of RFID are here in "America's Dairyland." Dairy farmers have used cow tags since the 1970s to track the health and milk production of their herds. The first tags were the size of bricks and hung around a cow's neck on a rope—but they worked, and the efficiency of milk production improved as a result. Few of the early RFID companies still exist, since most were acquired by larger firms. Because RFID did not grow as hoped in those early years, those pioneering companies and their staffs have dissipated into other parts of the industry, or retired.

The RF industry did not stop working on RFID, however. Those cow tags are now small, implantable capsules (like Figure 5 on page 50), and subsequent applications have demonstrated the ability of RFID to accomplish efficient non-visual monitoring and tracking functions for *things* as well as creatures.

Some of the planned applications of RFID that are not mentioned in the article by Dobkin and Wandinger are quite interesting. One is document control, where legal documents (e.g., titles, wills and contracts) are printed on paper with RFID circuitry woven into the fibers. Another interesting idea is part of the "smart home" concept, where consumer appliances or accessories have RFID readers to scan food, prescription and other tags to warn of expiration dates or issue reminders for refills or shopping trips. I'm sure there are other uses for RFID that no one has yet conceived. Those will undoubtedly come to mind when someone realizes that the technology and cost have finally made it thinkable to do whatever it is they need!

As usual, any information technology must also consider privacy. RFID should not be designed to contain personal information that can be hacked into by identity thieves. And, those consumer appliances that monitor con-

tents must report only to their users, unless there is a compelling reason to report that data to some monitoring agency. Even then, the data communication link should be encrypted.

I don't want to sound alarmist, just prudent. It's exactly the same principle as controlling access to printed records using locked file cabinets and controlling who has access to the storage area. If RFID technology will make it easier to gain access to personal data, it is important that the technology also incorporate safeguards against the misuse of that data.

On Another Subject...

Many of our advertisers and other suppliers to the high frequency industry make products for applications other than RF, microwave, lightwave or high-speed digital. They are also involved in displays, power management, interconnections, materials science, mechanical design and other technologies.

From time-to-time I am reminded of these additional areas of expertise and, this month, decided that it was a good time to hand out a few kudos for things outside our normal realm of coverage. Remember, there are no "RF-only" or "optical-only" products in existence! Every piece of electronics includes other functions and every component has other factors in its design and manufacture.

For example, the newest wireless phones emphasize non-radio functions like cameras, games and messaging. These are fun and useful additions. Sure, the radio part has gotten better and smaller to support these new featues, but all are working together to give the phone's user more capabilities in one small device.

All the portable devices need batteries to operate. The chemists who are making better batteries are every bit as important as the designers of the main functions. Then, to get the last few bits of energy out of that battery, the designers of power management ICs also need to be appreciated.

The industrial designers who make products both attractive and "human-engineered" deserve credit, too. Many product successes are a combination of innovative engineering design and equally innovative artistic design. A good idea can become a great product when the customers respond strongly to the way it looks, feels and fits.

(Of course, this has nothing to do with the fact that our youngest son will soon graduate from college with a degree in Industrial Design.)

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