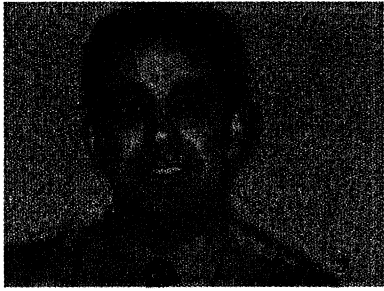


Wireless Under The Skin!



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From implanting a passive RFID microtransponder under the skin to implanting an active drug-delivery system in human bodies, various types of wireless technologies are being used to further improve some of the challenges within the healthcare industry.

For example, new wireless-enabled implantable devices are being developed to help patients with their regular drug injections and also provide a sophisticated delivery method for other drugs. Preprogrammed microprocessors using a wireless interface would control the release of any combination of drugs to a patient's body on a regular basis or when the patient's medical condition requires it. Emerging sensor technologies are also being integrated into these wireless-enabled implantable devices to provide both monitoring and the triggering of drug releases whenever it is required.

Another example is the RFID technology that is gradually being used to address issues such as patient identification, to decipher unclear written medical prescriptions and orders, medical information access, materials management and control in hospitals and clinics. These active and passive RFID devices allow the healthcare industry to provide an accurate exchange of

information between the patient and healthcare providers, eliminating today's inaccurate written orders and interactions. The ability to obtain medical information in a matter of seconds,

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the universally acknowledged RFID format's superb quality, small size and flexible packaging options, along with its reasonable cost of development, has made RFID technology even more attractive to the healthcare sector.

Today, passive RFID tags are replacing standard wristbands, and hospitals are moving away from barcodes and printed labels for patient identification and information. To assure authenticity and assist in accurate dispensing of medication or blood to patients, the labeling scheme for medication containers and blood bags is migrating from written labels or barcodes to passive reliable RFID tags. Your future wireless-enabled medicine cabinet at home will be communicating with your medication containers, gathering the usage information, dates, etc., and automatically communicating this information to your doctor, local pharmacy and insurance company. Old or recalled medication could be identified very easily at home, and warning messages could be sent to patients via their cell phones, personal emails, or even by phone calls from their healthcare providers.

Patients with cognitive disabilities are benefiting from FDA-approved passive implantable RFID microtransponders. During emergencies, when a disoriented or unconscious patient can not communicate their most basic information, these implantable passive tags could play an important role in saving the patient's life by providing this information.

As always, there are valid concerns. Who else could be accessing this private information by simply "sniffing" the air for a radio frequency signal? To address this issue, no personal or medical information is stored on these passive tags, but rather a unique sixteen digit number stored for identification. Advanced encryption technologies could be added to provide even more protection for the stored patient ID number.

As the semiconductor industry moves from 90 to 65 nm and beyond, new, complex SoC devices, with many new functionalities and built-in sensors, will find their places in many healthcare-related applications.