

RFID Lock for Electronic Devices

A startup has patented a way to use an RFID tag to render an electronic device inoperable without a password, which could deter supply chain theft.

July 2, 2003 - Most companies are looking at low-cost RFID tags as a way to track items in the supply chain. But some businesses are looking beyond tracking to the potential value RFID can add to products. One such company is a Rockford, Illinois, startup called Electronic Security & Identification, or ESI. Founder Carl Valiulis has patented a way to use an RFID tag to render an electronic device inoperable without first entering a password. The concept, dubbed DeadVolt, has the potential to drastically reduce supply chain theft of DVD players, VCRs and other high-value consumer electronics by making the goods worthless without their unique security codes. The system is similar to the registration codes used by software vendors to protect duplication of their products.

Let's say a manufacturer wants to secure a DVD player. A special RFID tag is attached to the back of a device and wired to a programmable interrupt controller (PIC) within the unit. When the device is turned on, the code immediately instructs the PIC -- an integrated circuit that functions as an overall manager for many electronic devices -- to check the RFID tag for a specific security code. If there is no code, or the code doesn't match, the device won't operate.

Valiulis says most devices wouldn't need any additional circuitry. "We're not selling the circuit," he says. "We're selling the design that they would integrate with their own circuit."

The system could be set up so that the retailer checks a database and writes the right code to the tag at the point of sale, or consumers could get the code when they go home and register the system online. ESI has developed the system to work over a home network, so the consumer could enter the correct security code over the network. (They can also remove the code and disable the DVD player when they go on vacation.)

Valiulis has been working on DeadVolt for five years and has a prototype that works via a home network. But he's only recently found an RFID microchip with the functionality that DeadVolt needs. "The RFID tags have not been advanced enough to do what we are trying to do," he says. "They are just reaching that phase."

ESI has found what it believes is a chip that can do the job and has hired an engineer to create a final prototype. The company is looking for funding, or for a consumer electronics manufacturer willing to back the development effort.

One problem ESI has had, in addition to finding the right RFID chip, is that the system is only really valuable when there is a standard for RFID. Retailers won't invest in five different readers to unlock electronics products from five different manufacturers.

If the Electronic Product Code catches on, then DeadVolt could have great appeal to manufacturers and retailers. Manufacturers would be tagging their products anyway. They could use a slightly more expensive RFID tag and greatly reduce shrinkage. The retailers wouldn't have to pay for the tag and would also reduce internal shrinkage.

"The beauty of this system is the RFID tag still identifies the item for supply train tracking and for the retailer's point of sale system," says Valiulis. "But it also secures the appliance and reduces theft. And electronics products have the highest theft ratio."

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