

RFID for Child Protection

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SmartWear Technologies of San Diego, CA, USA, has introduced two new products designed to give parents additional protection against child abduction and to aid in recovery of missing children. Both use proprietary RFID transponders sewn into clothing.

According to the company's news release, "SmartWear leverages wireless technology to create early-detection systems and envisions incorporating its patented technology into practical consumer products designed to monitor the whereabouts of children or locate missing persons.

"The company's first products incorporate RFID tags embedded in clothing of children, which allow parents to monitor the child's whereabouts and trigger an alarm if the child leaves a designated area or crosses a boundary."

This system, designed to protect against a child being abducted from a home, uses 2.4 GHz tags. Each item of a child's clothing (for example, pajamas), would include a tag with a serial number that is unique to that child. Each child in a family would have a unique ID. Readers would be placed strategically at doors, windows or gates and the system could be programmed to respond if the child moves out of a designated area. The system would be programmable in much the same way that home security systems are programmed. Although it uses passive transponders, it would operate in much the same way that active tags are used to prevent Alzheimer's patients from wandering away from protected areas.

As part of the system, the company is designing a series of unobtrusive readers such as those that would look like electrical switch plates. These readers are the only ones that would recognize the proprietary chips used in the clothing tags.

Tags would be supplied blank and inactive. Upon subscription to the service, a family would be assigned unique numbers for each family member. Tags could then be programmed for each child. To accommodate hand-me-downs as well as disposal or donation of clothing, tags can be reprogrammed or deactivated.

The company hopes the system will become an industry standard (under license) and is already in discussions with both clothing manufacturers and security systems companies.

The other product, according to the news release, is designed for search and recovery operations. "Outside the home, SmartWear can help Law Enforcement or Search and Rescue locate children or missing persons who have been abducted or are missing. In the future, SmartWear will be adapted to a variety of monitoring and locating systems and interface with law enforcement and AMBER Alerts."

This system currently employs proprietary 13.56 MHz tags with a greater range, readable with a special portable reader. Tags have a cloaking algorithm to prevent them being recognized by an off-the-shelf reader.

Whether these tags are sewn into clothing or provided as a tag, wristband or other type of identification, the company sees them as a valuable tool in search and rescue operations.

Bob Reed, SmartWear's Senior Vice President, points out that not everyone who goes missing is a child who has been abducted. Ski area lift passes could incorporate the technology to log skiers as they begin and end a run down the mountain and quickly identify anyone who goes missing or gets trapped in an avalanche.

According to Reed, SmartWear products are designed to recognize privacy concerns as well as security issues. The use of proprietary RFID chips is one measure they have taken for both technical and privacy reasons. "We approached several of the major chip manufacturers and realized that their standard products could not accommodate our security protocols. As a result, we have developed with our supplier proprietary RFID protocols that employ a cloaking algorithm so that they will not respond to an off-the-shelf reader." The chip also includes several layers of protection.

"What's more," Reed said, "the only information on the tag is a proprietary ID number. There is nothing to tie the tag to any personally identifiable information."

The company is also offering an additional option to assist in alerting police during an AMBER alert. Parents can register children with the company's secure database to include a photo, description, medical condition, and other information. This can then be communicated electronically to law enforcement in the event of an AMBER alert, saving precious time. Currently, once a law enforcement officer has visited the scene and determined that the child is missing, the officer then has to get identifying material from parents, return this to the police station, have it entered into the system then forwarded to other agencies. This process currently takes three to five hours.

The company is also moving forward with other products, such as active tags, to be used in larger areas. A recent case of a missing child underscores the potential use of such a system. The child, lost in a wilderness area, initially hid from searchers because they were "strangers." Several times during the search operation, rescuers were within 500 feet of the child but were unable to locate him. "With an active tag," Reed said, "they would have been able to find him much more quickly."

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