

Applications of Active Tags

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Toronto, ON, July, 2006 - Radio Frequency Identification (RFID), an automatic recognition technology employing wireless communications, has recently drawn much attention. RFID tags, both passive tags and active tags are broadly used in virtually every industry in the world. Today, this paper will introduce how the active tag works and also discuss some applications.

An active tag is an RFID tag that incorporates a battery, and can communicate with a reader that is several tens of meters away (there are tags that can communicate at several hundreds of meters). While passive tags can only respond to an electromagnetic wave signal emitted from a reader, active tags can also spontaneously transmit an ID. There are various types of transmission formats such as a common periodic transmission type, or the unscheduled transmission type such as when there are changes in vibration or temperature or when a button is pushed. In many cases, the ID data comprise several tens of bits. Generally, systems that employ active tags comprise the tags, a reader, and a server. The tag spontaneously transmits its ID. For example, if the tag is a periodic transmitting type, the tag broadcasts its ID at a predetermined time interval. When the reader receives the ID, it notifies the server of the ID via the network, and based on the ID the server executes the target service.

There are several active tag applications. Some innovative uses for active tags have been employed especially in the movement of human beings. For instance active tag technology has been used for tracking the movement of kindergarten children. Parents or guardians can view their children in kindergarten via the Internet by utilizing the active tags. Active tags are attached to the nametags of the children, and the classrooms and playgrounds are equipped with a reader and a Web camera. Based on this, by accessing the Internet the children can be viewed in real time and in their actual surroundings. The parents or guardians can readily select video images of their children.

Another deployment used active tags as an effective tool in monitoring grade school children on the way to and from School. Since the incidences of child abduction have increased, the application of active tags has been investigated. The backpacks of the children are equipped with a tag and readers are installed along the route to school and at the school gate. When a child passes by a location that is equipped with a reader, the ID is transmitted and the school and the parents or guardians are notified. By using this system, the teachers and the parents or guardians are alerted of any deviation in the commute to school.

Active tag technology also can be used for human subject identification when used in conjunction with a video surveillance system. Through the interaction of monitoring cameras and an active tag system, images recorded at the same time that ID data is read and recorded, provides an effective method for identifying criminal activity. For example, it would be very efficient to use the ID of an abducted person as a search key in an image search of a video database to identify a segment of surveillance video for evidence.

Furthermore, active tag technology can be very important for promotion and marketing. In department stores and supermarkets, if customers carried tags, their movements can be tracked inside the store, and based on their context history such as movement habits or purchasing history, the vendor can maximize positioned selling displays based on customer movement.

The final example is authentication and settlement. The use of contact-less IC cards for ticket examination in traffic systems has increased, and the system has become very convenient. To advance this concept further, if active tags can be used in authentication, it would even save the trouble of taking out a card. This type of process would become effortless and the level of convenience would increase even more. Of course, being billed for simply coming into close proximity of these readers would be problematic, and an authentication and settlement scheme that prevents illegal acts such as impersonation is needed.

In this way, applications that use active tags have a wide range and have the potential to become the basic identification method for future ubiquitous services. To learn more, please visit www.gaorfid.com

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GAO RFID Inc., a member of GAO Group, was spun out from GAO Tek (formerly GAO Engineering) in July, 2006 as a result of its fast growing RFID business and its further heavy investment in this exciting market. GAO RFID has established itself as one of world's most influential suppliers of RFID products, particularly RFID tags, labels, and readers. GAO emphasizes on product quality. [Read More...](#)

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