



View of a work of art evoking waves, displayed in the Bibliothèque de la Cité, Geneva, Switzerland.

## Geneva's municipal libraries adopt RFID and use ISO/IEC 15693 for tracking books

by Sandrine Tranchard,  
Communication Officer,  
ISO Central Secretariat

In order to provide quality services to their users, the municipal libraries of Geneva, Switzerland, have changed their electronic document loan management system, with the help of two companies, Tagsys RFID (USA) and Solid Solution en Identification (Swiss), which have developed a smart-tag technology based on the three-part ISO/IEC 15693 standard (see **Box**, page 32).

Radio Frequency Identification (RFID) enables detection, over a short distance, of a chip embedded in an item. The data stored on the chip can then be read or new data can be programmed into it.



The Geneva project started in June 2007 and should be completed by the end of the first half of 2008. Explains **Kieran Pavel**, the scientific assistant within the information systems department of Geneva's municipal libraries in charge of the RFID project: "We are the first library network with which Solid and Tagsys collaborate. Furthermore, we are installing a 'full RFID' solution, including a loan and anti-theft system.

"The software, which will centralize the operation and management of anti-theft gates, is a product entirely developed by Solid. Prior to RFID, we used the 'Alsi readers', which relied on tags with magnetizable metallic chips."

### Easy to use

A RFID chip with a unique identification number will be embedded in each relevant item (books, CDs, DVDs, etc.) and each borrower's card of all Geneva's municipal libraries.

For these libraries, the feature is easy to use. At the loan service, the docu-

ments and the borrower's card are placed on an RFID reader and, in one single operation of a few seconds, the documents are electronically linked to the borrower and their anti-theft system is deactivated.

"The benefits of this new RFID system are the simultaneous loans in one action with the borrower's card, the automatic tracking of multi-piece material, such as books and CDs, the integration of anti-theft systems through security gates and the identification of stolen documents", adds Kieran Pavel.

"During the second phase, which will start towards the end of 2008, we will start exploring new avenues, such as autonomous loan stations, inventory analysis, sorting and management of collections, etc.

"At the end of the project, we will have deployed and/or tested the standard benefits which RFID can bring to the library profession. We will then be able to envisage exploring more sophisticated aspects of RFID, such as smart shelves, user orientation, etc."

### Multiple benefits

The integration of the RFID technology into the new borrower cards coupled with the loan manage-

ment software will, in particular, enable libraries to:

- rapidly check documents in and out
- lend several books with one motion
- computerize discotheque loans
- computerize “Bibliothèque des sports” loans
- have faster and easier-to-use equipment
- make emergency loans in the event of a computer system failure
- detect and identify stolen documents with the help of anti-theft gates.

The system offered by Solid and Tagsys RFID met the demand of municipal libraries for an inventory and document loan management system.



The network, comprising seven libraries, makes 1,6 million loans per year, handles 7 600 new registrations each year and receives 500 000 annual visits.

The deployment of this contactless card technology within municipal libraries will allow them to track and protect hundreds of thousands of books, CDs and other documents.

“Tagsys is a designer and manufacturer of RFID systems, and a world leader in RFID systems specially designed for the identification and management of paper collections and CDs, and we have designed and supplied all the RFID equipment installed in Geneva’s municipal libraries”, says **Pierre Matignon**, Head of the European library division at Tagsys.

**Yves Alimi**, CEO of Solid, the company which sold and installed the system: “Each project phase is



carried out in close cooperation with our client and in close collaboration with the manufacturers. The e-connectware software that we have installed allows libraries, in real time, to know what book has been loaned whether an item has been stolen, how many visitors the library has received, what DVD is available, etc. This product is an ISO/IEC 15693-compliant open-standard solution. It gives security to our customers and enables them to understand that we are offering an open product, so that they do not feel tied to one manufacturer, as could be the case with a closed system.”



Loan counter with RFID equipment in the Pâquis district’s library.

## About the author



**Sandrine Tranchard**,  
Communication  
Officer,  
ISO Central  
Secretariat.

## Enhancing customer satisfaction

The RFID solution is used in libraries mainly to automate the book handling process – from check-out to check-in operations and throughout stock management. It also speeds up the sorting of books. Automating this process enables librarians to devote more time to customer service, and also enhances customer satisfaction in the context of improvements in the quality of services provided.



Security gate.

**“In one single operation of a few seconds, the documents are electronically linked to the borrower.”**

### Standards referenced in this article:

Pierre Matignon adds: “There are several ISO standards that enable the use of radio frequencies to be regulated and determined according to the various applications and regions of the world, thus guaranteeing the interoperability of existing RFID solutions.

Standards allow a microchip and a reader to communicate together at a given frequency. “For instance, an access badge will need to be compatible with ISO/IEC 14443 (see **Box**), since it is a personal access control application. A RFID 13,56 MHz high frequency tag, used to identify an item, will need to be compatible with ISO/IEC 15693.

“The implementation of ISO standards also means that companies can choose to buy their RFID tags and RFID readers from the suppliers of their choice. They are not tied to a single supplier as with a proprietary solution.”

### Unique identification of libraries

Other standards are also used by Geneva’s municipal libraries, such as ISO 15511:2003, *Information and documentation – International Standard Identifier for Libraries and Related Organizations (ISIL)*. The purpose of this international standard is to define and promote the use of a set of standard identifiers for the unique identification of libraries and related organizations with a minimum impact on already existing systems.

- ISO/IEC 15693-1:2000, *Identification cards – Contactless integrated circuit(s) cards – Vicinity cards – Part 1: Physical characteristics*
- ISO/IEC 15693-2:2006, *Identification cards – Contactless integrated circuit(s) cards – Vicinity cards – Part 2: Air interface and initialization*
- ISO/IEC 15693-3:2001, *Identification cards – Contactless integrated circuit(s) cards – Vicinity cards – Part 3: Anticollision and transmission protocol*
- ISO 15511:2003, *Information and documentation – International Standard Identifier for Libraries and Related Organizations (ISIL)*
- ISO/IEC 14443 (multi-part series), *Identification cards – Contactless integrated circuit cards – Proximity cards*
- ISO/IEC 18000, (multi-part series) *Information technology – Radio frequency identification for item management*
- ISO 9001:2000, *Quality management systems – Requirements*.

An ISIL can identify an organization, i.e. a library or a related organization, or one of its subordinate units, which is responsible for an action or service in a bibliographic environment (e.g. creation of machine-readable information). Or it can be used to identify the originator or holder of a resource (e.g. library material).

The ISIL is intended for use by libraries and agencies doing business with libraries, such as suppliers and publishers. An ISIL identifies an organization or one of its subordinate units, throughout its life.



RFID tag.

### Continual improvement

Solid and Tagsys also use other standards for their activities, such as ISO/IEC 14443 and ISO/IEC 18000 (see **Box**). Pierre Matignon explains: “These standards assure us of the quality of the product in development, and of its conformity with the requirements of the respective standards. Since 2005, TAGSYS is also ISO 9001:2000 certified in France for its design, production and distribution activities.

“This certification has led to enhanced customer satisfaction by allowing us to focus more on their expectations. Continual improvement in our processes enables us to obtain the results planned for each segment.” ■



Shelves of a section dedicated to youth collections in the Bibliothèque de la Cité.