Library RFID Management Architecture

Stand-Alone Anti-theft Detection

SIP2 Server Module

Integrated Library System

SIP2 PROTOCOL

KEYBOARD INPUT SUPPORT

Book-Drop (SIP2 Client)

Self Check Station (SIP2 Client)

Staff Station (Integrated with System)

Circulation Station (Integrated with System)
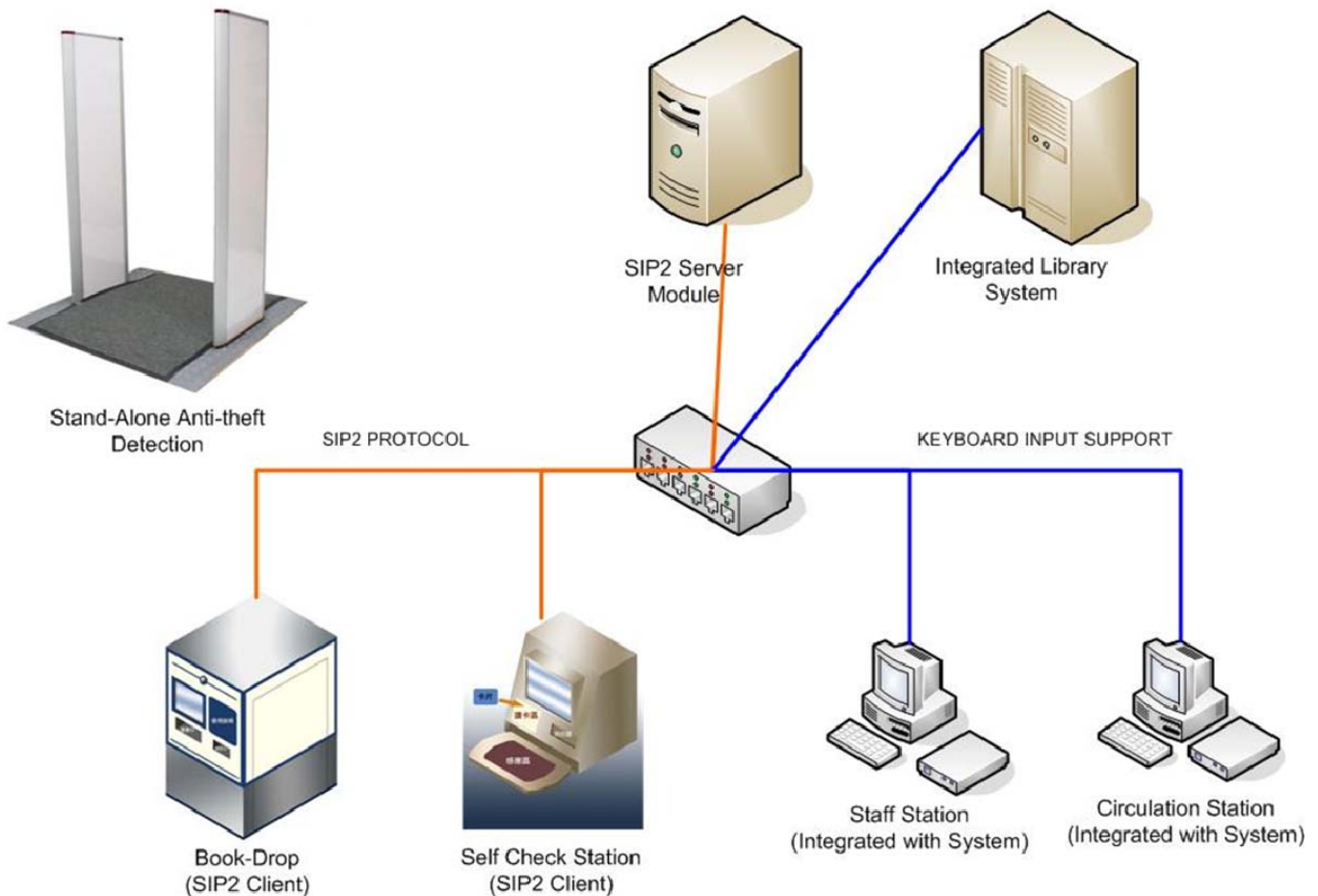
System Four Phases

1.Library Security System Only.
Using RFID Tag replace EM Security Stripe

2.Support Library Circulation
Using RFID tags replace the barcode in Circulation process. Reading book's access number from RFID than from barcode to borrow and return the book.

3.Patron Self Check-in/Check-out
Let patron do the check-out and check-in process of books.

4.Smart and Quick Inventory
Search and Inventory by reading the RFID using portable reader and portable computer.

Library RFID Management System
RFID Tag
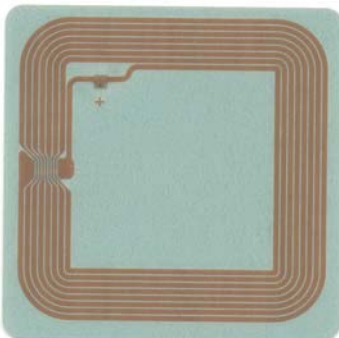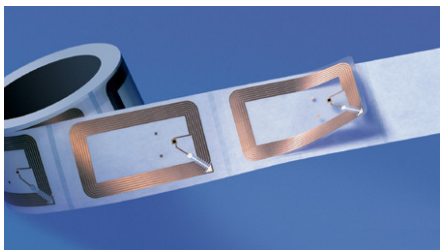
An RFID tag is the most important link in any RFID system. It has the ability to store information relating to the specific item to which they are attached, rewrite again without any requirement for contact or line of sight. Data within a tag may provide identification for an item, proof of ownership, original storage location, loan status and history.

RFID Tag consists of an integrated circuit and an antenna combined to form a transponder. RFID tags collect the energy to operate from a Radio Frequency (RF) field emitted by a reader device; therefore they do not need a battery. When energized by a radio signal from a fixed position reader or handheld scanner, the tag returns the stored information in order that the item to which it is attached can be easily located.

The chip also has a "multi-read" function, which means that several tags can be read at once.

RFID tags have been specifically designed to be affixed into library media, including books, CDs, DVDs and tapes. It is thin, flexible and thus can be laminated between paper and plastic. With special method to attach to books, patron is totally unaware that the tag is there.

KEY BENEFITS:
1. No line of sight needed
2. Allows to check-out and check-in several items simultaneously
3. Information directly attached to product
4. Performing both identification and antitheft in one single operation
5. Different shape and sizes available
6. Able to tag almost anything
7. Accelerate scanning and identifying

Specification:

Integrated Circuit (IC)	PHILIPS I-CODE SLI
IC's protocol /anti-collision	ISO 15693 / SLi IC specification
Memory	1024 bit, organized in 32 blocks, 4 byte each
Operating frequency	13.56 MHz
Unloaded resonance frequency	14,40 MHz ± 0,35 MHz
Transponder antenna material	Aluminum or Copper
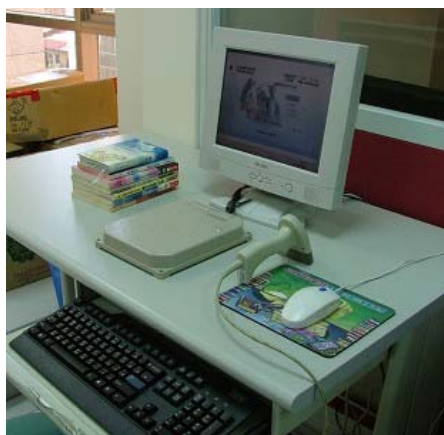
The LibBest^{TM} Counter Station is a staff assisted station on services such as loan, return, tagging, sorting and etc. It is loaded with arming/disarming module, tagging module and sorting module. Arming/Disarming module allows EAS (Electronic Article Surveillance) bit inside the tag of the library material to be set/reset so as to trigger/not trigger the alarm of the EAS gate. Checking of EAS status of library material is easy. The staff puts the item on the reader and click on the view to display the information stored inside the tag and status of EAS. There are also feature of Auto Arming and Auto Disarm. Auto Arm/Disarm will automatic arm/disarm library material that is within the Reader range.

Together with circulation module from Library Automation Software, this station is used for the following services:
1. Editing and updating of patron's record
2. Add and deleting of patron's record
3. Generate loan history for a particular patrons
4. Managing of fines incurred by the patron
5. Arm/Disarm of EAS bit inside the library material
6. Program of new library material
7. Sort item in accordance to their branch and category number

The features of this station depend on the module loaded by the Library Automation Software.

KEY BENEFITS:
1. Provide Value Added Customer Service instead of manual daily routine
2. Perform media check-in/-out for those patrons who choose not to use the self service system
3. Help patron that need assistance from the staff

The Book Drops can be located anywhere, within or outside the library. Possible remote locations outside the library include MRT/ train stations, shopping centers, schools, etc.

This offers unprecedented flexibility and convenience of returning library items at anytime of the day, even when the library is closed.

Patron inserts the library item into the slot. The reader captures the electronic signature and sends to backend system for loan cancellation. Patron is acknowledged by beeping sound and flashlight. Patron's record is updated immediately. This is possible due to the seamless link between LibBest RFID Management System and the host computer system. As such, users who have reached their loan quota can start borrowing items once they have returned them through the Book Drop.

KEY BENEFITS:
1. The ability to return books during off hours
2. Loans for the returned items will be instantaneously cancelled so that patron may immediately borrow again.
3. Librarians are able to allocate more time to customer service, as they are free from the labor-intensive loan cancellation activity associated with bar-code system
4. Display the return status and printing receipt
5. The design of the Book Drops is such that items cannot be retrieved back once deposited.

OPTIONS:
1. Accept special design
2. Integrate with Auto-sorting system

W Type

The Patron Self Check-out station is basically a computer with a touch screen and a built-in RFID reader, plus special software for personal identification, book and other media handling and circulation. After identifying the patron with a library ID card, a barcode card, or his personal ID number (PIN), the patron is asked to choose the next action (check-out of one or several books). After choosing check-out , the patron puts the books in front of the screen on the RFID reader and the display will show the book title and its ID number (other optional information can be shown if desired) which have been checked out.

The patron then confirms that he has finished the check-out process and a receipt is printed, showing which books have been borrowed and the return date. The RFID tag in the book is set on quiet as a result no alarm will go off at the EAS gates.

It is also possible to use the station for Check-In (return) of books. In this case the patron identifies herself, chooses return and then puts one book or a stack of books onto the reader. She will receive a receipt. If the books were to be taken through the gate now, an alarm would sound.

One important point for library productivity is that the whole process is significantly less time consuming than with barcode and magnetic strip system; therefore long lines are avoided and fewer stations are needed for the same process.

KEY BENEFITS:
To Librarians:
- Speeds up book check-in / check-out
- Frees staff to better service patrons
- Better space planning
- Increases membership rate
To Patrons:
- Easy to use: books can be read in any orientation
- Reduces queuing time
- Provides patron privacy
- Encourages patrons to come back

A Type

Available from January 2009

The LibBest™ Shelf Management Solution makes locating and identifying items on the shelves an easy task for librarians. It comprises basically of a portable scanner and a base station.

The solution is designed to cover three main requirements:
Search for individual books requested
Inventory check of the whole library stock
Search for books which are miss-helved

All these functions are performed by sweeping the portable scanner across the spines of the books on the shelves to gather their identities. In an inventory check situation, the identities collected are compared with the database and a discrepancy report could be generated.

In situations when search function is required, whether for a particular item or an item category, the information is first entered into the portable scanner from the base station, and when a foreign item is found on the shelves, a built-in beeper sound to alert the librarians.

KEY BENEFITS:
Changes inventory process:

1. No more book handling: just pass the reader across shelved books to perform an instant inventory.
2. Accuracy: book identification numbers are registered in the Shelf-Management Reader. The data is then downloaded to the central database.
3. The fastest inventory you have ever made: 20 books per second.
4. Notification: books to be pulled are up-loaded to the reader for quick identification.

User friendly:

1. Light weight
2. Wand allows easy reading of high and low shelves

Saves time and resources:

1. Implementers indicate a 75% reduction in human resources required for shelf management activities.

Single Aisle

Double Aisle

OPTIONAL

The LibBest^{TM} RFID EAS Gate is the anti-theft part of the RFID Library Management System using the same RFID tags embedded in the library items. Each lane is able to track items of 1 meter or more and would trigger the alarm system when an un-borrowed item passed through them. The alarm will sound and lights on the gate will flash as patron passes through with the library material.

The EAS Anti-Theft Gate is used to detect RFID tag that is equipped with EAS (Electronic Article Surveillance). It can detect the RFID tags within 1 meter range without interference of magnetic items, Upon detecting of Armed RFID tags, the alarm will sound on the gate. It has option to trigger a Camera to record patrons who trigger the alarm to the Surveillance Station.

Theft detection is an integral feature of the chip within the tag. It is a stand-alone technology, which operates independently of the library database.

FEATURES:
1. Detect EAS Armed RFID tags
2. Multi-item detection
3. Able to integrate camera with the gate (Option)
4. Able to integrate with Surveillance Station (Option)

KEY BENEFITS:
1. Single technology is required for both identification and anti-theft management of the library
2. Library staff are alerted immediately when un-borrowed items passes through the theft detection gates
3. Would-be thieves are deterred by the physical presence of the gates
4. Alarm volume can be easily controlled

Patron Card Process System

Patron Card Process System

Web-Cam
Card Printer
Computer
RFID Reader
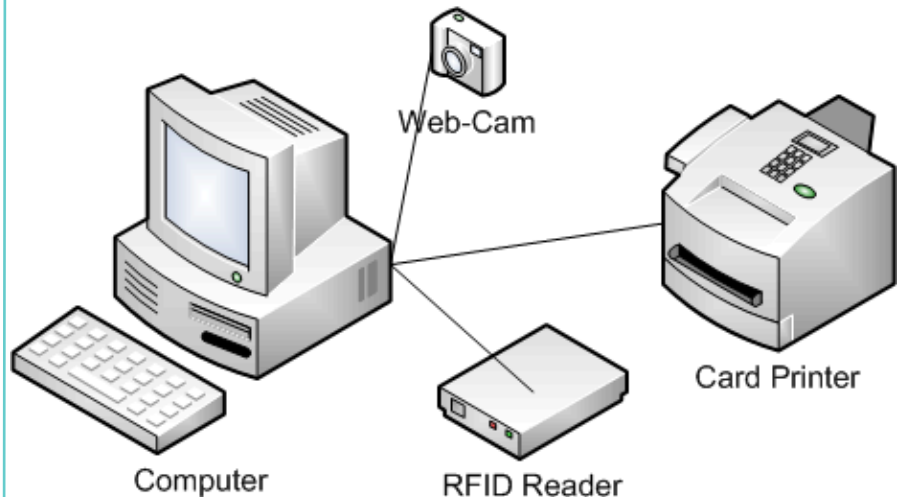
Components:
1. Card Printer (Double Side printing)
2. Digital Webcam & Tripod
3. Mid Range RFID Reader/Writer
4. Capture, Edit & Printing Software
5. Price not include PC & Monitor

KEY BENEFITS:
1. Double Side Card Printing will set librarian print patron card without changing side of card.
2. Library can make patron card in quick way and without patron to bring their own photo.
3. It is best way to serve patron
4. Connect to Integrated Library System Directly (this option depend on ILS system)