rfLiMS

RFID Library Management and Security System
The Concern

Books and Journals account for the majority of library material

- Databases for catalogue and search have significantly improved
- Automation of materials handling remains in the stone age

- Mis-shelved books, poor inventory accuracy
- Increased material handling time/costs
- Long lines at circulation desks
- Removal of book/tape/CD from the library
- Inefficient use of trained staff

The dilemma: How can librarians spend more time with students spend most of their day coping with the avalanche of materials in transit?

We need a solution, where technology actually buys time and productivity...
The main reasons for considering new technologies are the potential for cost savings and the management of material flows.

Barcodes simply points at the database
The Saviour

We need a technology that:
- More efficient than bar codes
- Reduces manual handling time
- Improve inventory process
- Provide security to library items

and that is...

RFID (Radio Frequency Identification)
How RFID Works?

Reader broadcasts signal through antenna

Antenna reads the data and sends to reader

The Charged tag sends identifying response back to the reader

Tag receives signal and gets charged

Reader sends data/info to computer for processing

Host Computer

Polyethylene Media

Chip

Copper coil antenna

Tag

Antenna

Reader

Computer

DAPHNE systems

End to End RFID Solutions
RFID Key Attributes

- Tags for libraries last for the lifetime of the books or other material to which it is attached.
- Electronic information can be over-written repeatedly.
- Unlike barcodes, RFID tags can be read:
  - Through desktops and book covers (no line of sight is required)
  - In any orientation to the reader/antenna
  - While moving
  - Several at a time
  - From distances of several feet to the antenna
- RFID improves library workflow, staff productivity and customer service with these attributes.
- Ability to conduct inventory counts without removing books from the shelves, is what really separates RFID from preceding technologies such as barcodes.
- Barcode limitation is no signal feed for anti-theft systems.
RFID Tags:

- Paper thin label
- Placed inconspicuously on the inside cover of each book in a library’s collection
- Consists of an antenna and a tiny chip which stores vital item information including a unique ID number
- Provides identification and security in a single tag
- Password protected anti-theft security bit

Specifications:

- Chip - Philips I-Code SLI-L
- 13.56 MHz Frequency
- ISO 15693, 18000-3
- 256-2048 bits Read / Write Memory
- Maximum Read Range: 1 meter Anti-collision (Multi-read)
System Components

**RFID Patron Card:**
- 13.56 MHz, ISO standard size: 85.7 x 54 mm Laminated PVC (flexi/hard)
- Unique ID eliminates risk of duplicate cards
- Personalized with relevant information about the Library member like membership No. etc
- Compatible with other auto-id systems – access control, e-Payment, e-Attendance etc

**Patron Card Printer:**
- Color dye sublimation and monochrome thermal transfer
- Print speed of 150 cards/hour in color and 1,000 cards/hour in monochrome
- Print head resolution: 300 dpi
- e-Media Card Designer Software Standard Edition for designing and editing badges
System Components

**Multipurpose Staff Station:**
- Versatile unit that operate as a circulation desk or tag encoding station
- Multiple simultaneous check-outs, check-in and renewals
- Arm / Disarm Library items
- Identify the borrower using RFID Patron Cards
- Tagging of new library items
- Programming RFID Patron Cards

**Tagging Station:**
- The Tag Programming Station simplifies the move to Daphne rfLiMS.
- Convert existing material to RFID quickly and easily; more than 3 items per minute
- Program RFID patron cards and update the information in the ILS System database
- Processes bar code & RFID Tags
System Components

Self Check Station:
- Enables library patrons to manage their own transactions easily and efficiently
- Simplifies the checkout, check in and renewal process
- Double return bin option provides item separation at return
- SIP2 circulation protocol
- Integrated touch screen and receipt printer
System Components

Self Check-In Drop Box:
The Book Drop Station can be placed at any convenient location to enable patrons to return their items anytime, even after the library is closed. The loans are instantaneously cancelled, patrons may immediately borrow again.

- SIP2 circulation protocol
- Reactivates security bit
- Provides return receipts
- Depressible Receiving Cart
System Components

Wireless Inventory Management System:

Cordless RFID reader and mobile computer (PDA) combines convenience with versatility and provides advanced capabilities -

- Fast, efficient inventory
- Locates misplaced volumes
- Arm / disarm item (optional)
- Unique feature of marking items for bindery during inventory
- Individual and Multiple item search with audio-visual signal

Specifications:

- Microsoft Windows CE 5.0
- FCC regulations Compliant
- IP55 Environmental Sealing
- 20-hour battery life
- 4’ drop threshold
System Components

Security Gates:
- Most modern detection algorithm that constantly detects any unauthorized item removal.
- Covers approximately 1 meter wide pathway with no orientation limits
- Variable gate width of up to 1.80 m (2 x 90 cm)
- Visual and audible alarms at unauthorized item being taken out
- Anti-collision feature

Security Station:
- Placed at the exit gates, provides an alternate solution for security using RFID tags.
- Manned Station at the library exit gates
- Quick and easy detection of item circulation status
- Provides fool-proof security
System Components

**Sorting Station:**
- Improve service for patrons and simplify work for library staff by automating material handling tasks.
- Automated round the clock check-in
- Automated Materials Sorting by shelving locations
- Expandable due to modular structure
- Reduces turnaround time of item shelving

**RFID Server:**
- Central Control Unit for all the RFID stations in the local network.
- Primary database server
- Acts as a backup server in case of LMS connection failure
- Web based Admin Console
- Monitor and configure RFID workstations, view inventory reports etc.
- Define Access Control Levels to the users of Multipurpose
Benefits

For Library & staff:

- Reduced time and labor for checking-in and checking-out materials
- Significant reduction in time spent doing inventory and stock verification
- Stock verification without closing the library
- Reduced time and labor spent searching for misplaced / lost items
- Increased circulation through self-check, leaving staff for more meaningful value added services
- Lesser staff at the circulation desk during a busy period
- Less number and value of lost items for a specified time period
- Less maintenance cost due to lifetime guarantee of RFID tags
For library users:

- Faster, easier and convenient to use
- Shorter waiting time at circulation desk
- Higher availability of library items due to faster book turnover
- 24-hours return facility of library items
- Faster and accurate re-shelving; patrons can find items where they should be, hence quicker and more satisfying service
- Better library experience; more frequent visits
The main standards pertaining to library RFID are:

- **SIP2 (Standard Interchange Protocol V2) / NCIP**
  SIP2/ NCIP manages the communication between the RFID system and the Library Management Software.

- **ISO 15693 and 18000-3**
  ISO 15693 defines the physical characteristics, air interface, and communication protocol which will be employed with the 13.56 MHz RFID tags & readers used in libraries.
Daphne brings the key elements of the whole solution together to provide end-to-end solution for your libraries

- Project Management / Co-ordination
- Integration to LMS
- System Installation
- Testing & commissioning
- 12 months warranty with onsite support personnel
- Item Conversion
- Patron Cards Printer, on demand printer rolls
THANK YOU

Daphne Systems Private Limited
114, First Floor, Alaknanda Commercial Complex
LSC Plot No. 3 Vikas Kendra, E-Block Vikaspuri
Delhi – 110018
Tel: 011-43021682 Email: info@daphnesystems.com