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APPLICATIONS OF RFID TECHNOLOGY & ROLE OF LIBRARIAN IN TAG TECHNOLOGY

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ABSTRACTS

Library consists Journals, books, theses, reports etc. To handle the huge collection in library there should be safe and secure system must in library. Radio Frequency Identification (RFID) is new generation of auto identification and data collection technology which helps to automate business processes and allows identification of large number of tagged objects like books, using radio waves for the security purpose, the main aim of the security should be provide safe and secure faculty for library employees, library resources and equipment and library patrons. The proposed system also increase efficiency, productivity and user satisfaction. It allows transaction flow for library and also can improve the traceability and security.

KEYWORDS: RFID, Security System, Smart Library, RFID Tags, Radio Waves, RFID Components

INTRODUCTION

Library RFID

RFID is a subset of a group of technologies, often referred to automatic identification; RFID means Radio Frequency Identification i. e the technology that uses radio waves to automatically identify idividuals materials. The main work of RFID system to carry data in suitable transponder mostly known as Tags It also retrieves data by machine readable means, at a suitable time and proper place to satisfy particular application needs. It is a challenge to manage for Librarians, managing such type of huge collection.

What is RFID?

RFID is one of the best technologies being by both industrial and academic world. Modern academic library is a place where millions of books, periodicals, CD's, DVD's, and other electronic materials are contained. RFID is the reading of physical tags on single products, cases, pallets, or re-usable containers which emit ratio signals to be picked up the readers devices. RFID technology is in use since the 1970s. RFID tag can be active, Semi passive and passive. It is a small device that can store information passive tags don't have internal bat tries. RFID reader is a device that can receive and transmit a radio signal. It is built to encode data stored in tag's microprocessor. Because of higher cost, active and semi active, RFID tags are used for valuable asset tracking. The passive RFID tags are used in RFID library management systems.

Components of RFID Systems

RFID Library Management, using RFID tags library, it is easy and convenient, A RFID Library Management system consists of books, each attach with RFID tag, RFID reader, computer network and software. This allows the RFID systems to deduct the objects (tag) and perform various functions and operations on it. Tag attached with an object, unique

identification. Library staffs handle all library housekeeping operations like lending, returning, sorting, tagging etc. of books, using RFID tags in this library systems. It hels the person in locating the book marked with RFID tags, by using the RFID reader which is very helpful to identify and locating book: when the book is carried to the counter, the library staff can either activate ,deactivate the electronic article surveillance bit is deactivated.

Antenna (tag dictator, creats megnatic field) **Reader** (Receiver of tag information) Communication Infrastructure (It enables reader/RFID to work through IT Infrastructure) Application software.

RFID Library Management System

In this system all work done by the system software .This system involves special software by using this RFID in libraries It saves the precious time of the reader as well library staff. It saves the actual time which reader spent on waiting for his turn in queue for issuing or returning a book. The system software taking care of books and making them available to the book readers which is most imp. Task. Borrowing and returning of books can be fully automat zed with the help of self checking in/out systems. In this installed software system A person using this syetem to borrow books, is presented with options on a computer screen. The person has to identify himself with a code, a personal identi- fication number .Books selected by the person are identified by the system built in RFID reader. On issuing a book the surveillance bit in the book's tag is deactivated by the system. When a book retu- rned the check in/out system activates the surveillance bit

Figure 1

Application in RFID Library Management System

The library adopts RFID technology aim of improving the self library adopts RFID technology aim of improving the self- service. Patrons can borrow and return the items using automatic lending machines, which require a library card and a pin. Self service becomes much easier with this new technology as It does not require line of slight and max. three items can be borrowed at a time besides, sorting the returning books grately reduces the library staff's manual work. As RIFD, label has anti theft function, there is no need for an extra alarm strip to be attached to the item which makes the borrowing and tag- ing tasks a lot easier accordingly.

Book Drops

The book drops can be located anywhere, with in or outside the library. This offers flexibility and convenience of returning library items at any time of the day even when library closed.

RFID Tagging

It is the most important link in any RFID system. It has ability to store information relating to the specific item. RFID tags have been specifically designed to be affixed into library media, including Books, CD's, DVD's, and tapes.

Counter station

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 allows EAS (Electronic Article Survillance) bit inside the tag of the library material to be set/ reset so as to trigger/ not trigger the alaram of the EAS gate.

The Patron Self Check Out Station

It is a basically a computer with a touch screen, plus special software of personal identification, book and other media handling and circulation, after identifying the patron with a library ID card, a bar code on his personal ID no. (Pin)., the patron is asked to choose the next action (Checkout of one or several books).

Shelf Management

The solution makes locating and identifying items on the shelves an easy task for Librarians.

Anti-Theft Detection

When an unborrowed or un-issued library material or item passed through them The alarm sound and lights on the gate will flashes.

Advantages and Disadvantages

Advantages	**Disadvantages**
RFID tags replace both the bar code and traditional and security and creating a smart library	The major disadvantage of RFID technology is high cost.
Simplyfy patron self check out/check in automated issue, return.	It is possible to compromise an RFID system by wrapping the protected material in two or three layers of ordinary house hold foil to block the radio signal.
Fast and convenient, easy stock verification	The performance of the exit gate seasons is more problematic

Benefits of RFID Use in Library

- Fast inventory process .

- Ability to locate specific items.

- More than one item can be checked out or checked in at the same time.

- Allow Better accuracy in book collection management.

- Assist traceability of book allocations.

- Improve customer service.

- Improves staff productivity.

- RFID improves library work flow by.

Role of Librarian

RFID technology introduces an ethical dilemma for professionals. RIFD tags are very simple to install/ inject inside the body of concerned, thus helping to keep a track on them. RFID technology is better than bar codes as it can not be easily replicated and therefore, It increases the security of the product bar code , Scanner have repeatedly failed in providing security of books and journals in libraries. But Now a days, RIFD tags are placed inside the books and an alarm is installed at the exist doors. RFID, tags can store data uo to 2KB whereas, the bar code has the ability to read just 10-12 digits.

CONCLUSIONS

RFID technology is not only emerging but also more effective convenient and cost efficient technology in library security. This technology has begun to replace the traditional bar code in library items. The RFID tag can contain identifying information such as a book's title or material type, which replace is the standard bar code reader commonly found at a library is circulation desk. The RFID tag found on library materials and not only the book but also the membership cards could be fitted with an RFID tag.

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