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## **RFID in Libraries**

Briefly, the RF in RFID stands for "radio frequency"; the "ID" means "identifier." The tag itself consists of a computer chip and an antenna, often printed on paper or some other flexible medium. The shortest metaphor is that RFID is like a barcode but is read with an electro-magnetic field rather than by a laser beam. The similarity ends there. RFID is an advanced technology compared to barcodes. The RFID tag does not have to be visible to be read; instead, it can be read even when it is embedded in an item, such as in the cardboard cover of a book or the packaging of a product. It can also carry a more complex message than a barcode, which is limited to an identification number. The chip that is part of the RFID tag can carry many bytes of information, which means that it has the potential to carry not only the item number used by a library but also information such as the title of the book and/or its call number. The size of the information payload of RFID chips is one of the features that will undoubtedly expand as future technology advances allow the creation of smaller and more powerful chips.

## Advantages of RFID Technology Stock Management

Operation such as managing materials on the shelves, finding, items that are missing and identification mis shelved items are streamlined and taking stocks regularly will be feasible

#### Improved patron services.

- Spending minimal time on circulation operations allows library staff to assist patrons
- Routing patron services are not disturbed even with libraries are facing staff shortages & budget cuts.

#### **Flexibility and modularity**

- Ability to add newer products and features as finances and customer needs dictate
- Expenses of adopting the technology can be managed over a time period
- Allows for phased funding and more effective use of Institutional budgets

#### Security

- Library items identification & security bit is combined into a single tag, thereby eliminating the need to attach an additional security strip, hence minimizing labeling time & its associated cost.
- Library Staff
- Less time needed for circulation operations
- Implementing RFID will considerably reduce the amount of time required to issue, receive, transport, sort & shelve library materials
- Automated check in will reduce staff time required for material handling
- Efficient Inventory management
- Inventory management can be done using a handheld reader without closing the library and is at least 20 times faster compared to barcode based system
- Reducing Repetitive Injuries (RSI)
- RFID based system reduces repetitive scanning of individual items at the circulation desk during check in, check out and hence avoid RSI such as carpal tunnel syndrome
- Taking inventory in a RFID based system doesn't require physical deshelving & shelving of library materials

- Benefits of RFID over Barcode Based System
- Non line of sight reading of multiple items at a provides for efficient circulation of library materials.
- Locating specific items on shelves is possible using RFID based handheld readers.
- On chip data storage & reprogrammable memory allows rfid tagsto record information such as location of books in the library, statistics, etc.
- Auto Detection of unauthorized items going out of the library premises using rfid based system.
- RFID based system can be used in harsh environment.

## Implementation Cycle

# Phase Wise planning for Development of Complete Solu tion.

Sr.No.	Tasks	Schedule					
1	Procurement of Hardware	2	4	6	8	10	12
2	Tagging Books						
3	Integrating Middleware						
4	Performing Test Cases						
5	Training Staff						
6	Process Improvement						

#### **Procurement of Hardware**

Sourcing of RFID Hardware i.e. Readers, Tags & Antenna needs to be done before starting anything else. Once the hardware Specification and respective products are finalized, specific read regions can be decided and implementation can be done.

#### **Tagging Books**

Each & every book needs to be tagged. The process needs 2-3 people continuously affixing tags to specific area on books as decided earlier from the finding during the pilot test.

#### Performing Test Cases

Predefined set of test cases will be a performed in scenario based format to examine unit level and system level performance for accuracy and throughput.

#### Should Libraries Use RFID?

Because of the privacy issues, some librarians and library users question whether libraries should consider using RFID at all. While we can ask this question today, we may be facing RFID in our future regardless, especially if RFID becomes the successor technology to barcodes. Should barcodes and barcode readers go the way of vinyl records and turntables, libraries needing new or replacement technology will have little choice but to purchase RFID-based systems. Because of this possibility, we cannot afford to ignore this new technology, even if we do not embrace it today. RFID is a highly advantageous technology for a wide variety of inventory tracking situations. It is also coming into its own for payment systems, including the ever elusive "micro-payment," the holy grail of non-cash transactions. Whether or not libraries embrace RFID, it will probably continue to replace barcodes in the retail supply chain. And it will contribute to the general speeding up of our world, which affects libraries as well as other institutions. A key fact is that library circulation, the primary function where RFID can be used, is increasing while library budgets and purchasing power are losing ground.

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## Conclusion

Implementing RFID system in libraries will aid tasks such as circulation, re-shelving & theft detection, and it has several other important advantages. In short RFID streamlines workflow in the area of self services, book return, shelf management and Inventory.

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