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INTRODUCTION:

Radio-frequency identification (RFID) utilizes electromagnetic fields to automatically recognize and track tags joined to objects. The tags contain electronically put away data. Passive tags gather vitality from an adjacent RFID reader's cross examining radio waves. Active tags have a neighborhood control source, (for example, a battery) and may work several meters from the RFID reader. Dissimilar to a scanner tag, the label require not be inside the viewable pathway of the reader, so it might be installed in the followed protest. RFID is one strategy for Automatic Identification and Data Capture (AIDC).

RFID tags are utilized as a part of numerous ventures, for instance, a RFID tag connected to an automobile during production can be utilized to keep tabs on its development through the mechanical production system; RFID-tagged pharmaceuticals can be followed through warehouses; and embedding RFID microchips in livestock and pets considers positive

DEFINITION OF RFID:

RFID (radio frequency identification) is a type of wireless communication that joins the utilization of electromagnetic or electrostatic coupling in the radio frequency portion of the electromagnetic range to remarkably identify an object, creature or individual.

An innovation that permits the identification of a thing utilizing radio waves. Radio frequency identification or RFID, is ordinarily utilized utilizing a microchip and a reception apparatus, and as a feature of a logistics system can enable organizations to keep stock of items. RFID innovation started in the 1970s.

HISTORY:

Radio-frequency technology has come a long way from its foundations toward the start of the twentieth century. Russian physicist Leon Theremin is ordinarily credited as having made the primary RFID gadget in 1946 (Scanlon, 2003). While Theremin might be perceived for the

COMPONENTS OF RFID:

RFID systems comprise of three components in two mixes: a transceiver (transmitter/recipient) and antenna are normally consolidated as a RFID reader. A transponder (transmitter/responder) and antenna are joined to make a RFID tag. A RFID tag is read when the reader transmits a radio flag that enacts the transponder, which sends information back to the handset.

An essential RFID system comprises of three components:

- An antenna or coil
- A transceiver (with decoder)
- A transponder (RF tag) electronically modified with remarkable data

RFID FREQUENCIES

RFID frequency bands						
Band	Regulations	Range	Data speed	ISO/IEC 18000section	Remarks	Approximate tag cost in volume (2006) US \$
120–150 kHz (LF)	Unregulated	10 cm	Low	Part 2	Animal identification, factory data collection	\$1
13.56 MHz (HF)	ISM band worldwide	10 cm–1 m	Low to moderate	Part 3	Smart cards (ISO/IEC 15693, ISO/IEC 14443 A,B). Non fully ISO compatible memory cards (Mifare Classic, iCLASS, Legic, Felica ...). Micro processor ISO compatible cards (Desfire EV1, Seos)	\$0.50 to \$5
433 MHz (UHF)	Short range devices	1–100 m	Moderate	Part 7	Defense applications, with active tags	\$5
865-868 MHz (Europe) 902-928 MHz (North America)	ISM band	1–12 m	Moderate to high	Part 6	EAN, various standards	\$0.15 (passive tags)

COMMERCE

RFID gives an approach to associations to identify and manage stock, tools and equipment (asset tracking), and so on without manual information section. Manufactured products , for example, vehicles or articles of clothing can be followed through the industrial facility and through transportation to the client. Manufactured products with RFID can be utilized for inventory systems. Many associations require that their sellers put RFID tags on all shipments to improve supply chain management.

• Retail

RFID is utilized for thing level tagging in retail locations. Notwithstanding inventory control, this provides both protection against theft by clients (shoplifting) and workers ("shrinkage") by utilizing electronic article surveillance(EAS), and a self checkout process for customers. Tags of

TRANSPORTATION AND LOGISTICS

Yard administration, shipping and cargo and circulation focuses utilize RFID tracking. In the railroad industry, RFID tags mounted on locomotives and moving stock distinguish the proprietor, recognizable proof number and kind of equipment and its qualities. This can be utilized with a database to recognize the filling, starting point, goal, and so on of the items being carried.

In commercial aviation,, RFID is utilized to help support on commercial aircraft. RFID tags are utilized to distinguish things and load at a few airports and airlines.

A few nations are utilizing RFID for vehicle enlistment and requirement RFID can help recognize and recover stolen autos.

RFID is utilized as a part of intelligent transportation systems. In New York City, RFID readers are sent at convergences to track E-ZPass tags as a methods for observing the traffic flow. The information are encouraged through the broadband wireless infrastructure to the traffic administration focus to be utilized as a part of versatile movement control of the traffic lights.

INFRASTRUCTURE MANAGEMENT AND PROTECTION

At least one company has introduced RFID to identify and locate underground infrastructure assets such as gas pipelines, sewer lines, electrical cables, communication cables, etc.

PASSPORTS

The main RFID passports ("E-passport") were issued by Malaysia in 1998. Notwithstanding data likewise contained on the visual information page of the passport, Malaysian e-passports record the movement history (time, date, and place) of passages and ways out from the nation.

Different nations that embed RFID in passports incorporate Norway (2005),^[36] Japan (March 1, 2006), most EU nations (around 2006), Australia, Hong Kong, the United States (2007), India (June 2008), Serbia (July 2008), Republic of Korea (August 2008), Taiwan (December 2008), Albania (January 2009), The Philippines (August 2009), Republic of Macedonia (2010), and Canada (2013).

TRANSPORTATION PAYMENTS

In numerous nations, RFID tags can be utilized to pay for mass transit fares on transport, trains, or metros, or to collect tolls on highways.

Some bike lockers are worked with RFID cards doled out to singular clients. A prepaid card is required to open or enter an office or locker and is utilized to track and charge in light of to what extent the bike is parked.

The Zipcar car sharing administration utilizes RFID cards for locking and unlocking cars and for part ID.

In Singapore, RFID replaces paper Season Parking Ticket (SPT).

ANIMAL IDENTIFICATION

RFID tags for animals represent to one of the most s oldest uses of RFID. Initially implied for huge farms and unpleasant landscape, since the episode of frantic dairy animals infection, RFID has turned out to be significant in creature recognizable proof administration. An implantable

HUMAN IMPLANTATION

Biocompatible microchip embeds that use RFID innovation are in effect routinely embedded in to people. The primary revealed try different things with RFID implants was directed by British educator of robotics Kevin Warwick who had a RFID chip embedded in his arm by his general expert George Boulos in 1998. In 2004 the 'Baja Beach Clubs' worked by Conrad Chase in Barcelona and Rotterdam offered embedded chips to distinguish their VIP clients, who could thus utilize it to pay for benefit. In 2009 British researcher Mark Gasson had a propelled glass capsule RFID device surgically embedded into his left hand and accordingly showed how a PC infection could remotely contaminate his embed and after that be transmitted on to other systems.

The Food and Drug Administration in the United States affirmed the utilization of RFID

COMPLEMENT TO BARCODE

RFID tags are frequently a supplement, however not a substitute, for UPC or EAN barcodes. They may never totally replace barcodes, due to a limited extent to their higher cost and the benefit of numerous information sources on a similar protest. Likewise, dissimilar to RFID labels, barcodes can be created and appropriated electronically, e.g. by means of email or cell phone, for printing or show by the beneficiary. An illustration is carrier tickets. The new EPC, alongside a few different plans, is broadly accessible at sensible cost.

TELEMETRY

Active RFID tags likewise can possibly work as ease remote sensors that communicate telemetry back to a base station. Applications of tagometry information could include sensing of road conditions by implanted beacons, weather reports, and clamor level observing.

Passive RFID tags can likewise report sensor information. For instance, the Wireless Identification and Sensing Platform is a passive tag that reports temperature, increasing speed and capacitance to business Gen2 RFID readers.

It is conceivable that active or battery-assisted passive (BAP) RFID tags, could communicate a flag to an in-store collector to decide if the RFID tag (item) is in the store.

APPLICATION OF RFID IN LIBRARIES:

RFID is one of the most technologies being adopted by both industry and academic world. Modern academic library is a place where millions of books advanced; periodicals, CDs, DVDs

RFID LIBRARY MANAGEMENT SYSTEM

Using RFID in libraries saves library staff's time by automatizing their tasks. An establishment that uses RFID library management saves a book reader, precious time that he would have been spent, waiting for his turn in a queue for borrowing or returning a book. Taking care of books and making them available to the book readers are important tasks. Most of the library staff's time is spent in recording information of incoming and outgoing books.

Borrowing and returning of books can be fully automatized with the help of self check in/out systems. This system involves installation of special software. A person using this system to borrow books, is presented with options on a computer screen. The person has to identify himself with a code, which is preferably a personal identification number, or any form of unique identity code. Books selected by the person are identified by the system's built-in RFID reader. And, the surveillance bit in the book's tag is deactivated by the system. When a book is returned, the check-in/out system activates the surveillance bit.

APPLICATION IN RFID LIBRARY MANAGEMENT SYSTEM

1. Book Drops: The Book Drops can be located anywhere, inside or outside the library. Possible remote areas outside the library incorporate MRT/train stations, shopping centers, schools, and so on. This offers extraordinary adaptability and comfort of returning library things at whenever of the day, notwithstanding when the library is closed.

2. RFID Transponder or Tagging: It is the most vital connection in any RFID system. It can store data identifying with the particular thing to which they are connected, modify again with no necessity for contact or observable pathway. Information inside a tag may give ID to a thing, evidence of proprietorship, unique stockpiling area, credit status and history.

RFID tags have been particularly intended to be appended into library media, including books, CDs, DVDs and tapes.

ADVANTAGES OF RFID IN LIBRARIES

Due to the low cost of the barcode technology, most of the libraries around the world are using it for circulation management. However, the main constraints related to barcode technology are that it always requires a line-of-sight, does not provide security of library collection, does not offer any benefit for collection management and is becoming very difficult for the libraries to satisfy the increasing demands of the users.¹⁹ Hence, a need was felt to have a better technology that can improve the circulation management, inventory and security of library collections. Some of the advantages of RFID in libraries include issuing multiple books at a time; simplified self-charging/discharging; reduction in queue at circulation desk /counter; more hours of circulation; saving time of the library staff while issue/return of document; allow library staff to provide other users' centric service; reduction of staff at circulation desk; increased issue/return of library documents; security of library collection, etc.

ISSUES RELATED TO USE OF RFID IN LIBRARIES

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RFID LIBRARY MANAGEMENT SYSTEMS:

CHAPTER- 2 LITERATURE SURVEY

[Vinay Shanker Mahajan](#) (2016) Library management plays a key role in patron satisfaction. RFID technology can effectively improve the self-service and the collection management, which correspondingly leads to improving the patrons' satisfaction with using the library. Library consist intellectual capital it might be scholarly journals, books, reports, theses etc. For security purpose, the goal of the security system should be to provide a safe and secure facility for library employees, library resources and equipment and library patrons. At the same time due to application of security system, that promise to increase efficiency, productivity and enhance user satisfaction.

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PROFILES OF THE INSTITUTIONS

INTRODUCTION OF HIGHER EDUCATION IN INDIA

India's higher education system is the world's third largest in terms of students, next to China and the United States. Unlike China, however, India has the advantage of English being the primary language of higher education and research. India educates approximately 11 per cent of its youth in higher education as compared to 20 per cent in China. The main governing body at the tertiary level is the University Grants Commission (India), which enforces its standards, advises the government, and helps coordinate between the centre and the state. Universities and its constituent colleges are the main institutes of higher education in India. At present in 2011, there

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OBJECTIVES OF THE STUDY

1. To study the advantage of using RFID in library.
2. To study the issues and challenges of implementing RFID in library.
3. To study the technology used for implementations of the RFID in library.

HYPOTHESES

H₀: RFID technology is better solution for Automation of the libraries.

H₁: RFID technology is costly to incorporate and having great Return On Investment (ROI).

H₂: RFID technology is a combination of Radio frequency and microchip which is either active or passive which requires power to operate.

SCOPE OF THE STUDY

The paper covered the components and technical features of a modern RFID library system to be adopted in SRCC and Shaheed Rajguru College of Applied Sciences For Women Library, its

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RESEARCH METHODOLOGY:

RESEARCH DESIGN:- The research design was used in this study is both 'Descriptive' and 'exploratory'.

DATA COLLECTION METHOD:

The data was collected using both by primary data collection methods as well as secondary sources.

PRIMARY DATA: Most of the information was gathered through primary sources. The methods that were used to collect primary data are:

- Questionnaire
- Interview

SECONDARY DATA: The secondary data was collected through

- Internet
- Magazines

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DATA ANALYSIS:-

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FINDINGS & RECOMMENDATION

CHAPTER 8

LIMITATIONS OF THE STUDY

The report may be beneficial to BRCC and Shaheed Rajguru College of Applied Sciences For Women Library. But there are some limitations of the study:-

- The size of the research may not be substantial and it is limited to area.
- There may be lack of time on the part of respondents.
- As only single area was surveyed or covered, it does not represent the overall view of each field.
- It may be possible that some of the respondents may give the incorrect information.
- RFID tags used in the libraries contain a minimal amount of information, essentially the same information stored in barcode for privacy concern.

REFERENCES :-

QUESTIONNAIRE :-

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