

# International Conference on Innovations and Transformations in Knowledge Resources in Electronic Era (ICITKREE-2020)

Organized by  
M.S.P.Mandal's

Shri Shivaji College, Parbhani

Conference Schedule  
06<sup>th</sup> March 2020



09.00 am to 10.00 am  
10.00 am to 11.30 am  
11.30 am to 12.30 pm

12.30 am to 01.30 am  
01.30 pm to 02.30 pm  
02.30 pm to 03.30 pm

Conference Director : Dr. N.B. Dahibhate  
Rapporteur General : Dr. Shashank Sonwane

Registration  
Inauguration  
Keynote Address Dr. Mizbah

Plenary Speech : Dr. D.K.Veer  
Lunch  
Plenary Speech : Dr. N.B. Dahibhate

03.30 pm to 04.00 pm

Technical Session : 1

## Theme

### 1. Technology Enabled Library Services 2. Libraries for Next Generation

1. Dr. Jagdish Kulkarni
2. Dr. Rameshwar Pawar

Chairperson  
Rapporteur

#### Theme 1. Technology Enabled Library Services

- |    |   |  |
|----|---|--|
| 1  | Ghogare Heera                             | Computer Application in Libraries and its Importance                             |
| 2  | Mazumder Partha Pratim                    | Artificial Intelligence in Libraries   |
| 3  | Bhande A P.                               | Artificial Intelligence and its applications in Libraries                        |
| 4  | Mhaske Savita                             | Soft Skills for Library Professionals in Information Era                         |
| 5  | Galkwad Vijay R.                          | Library Network in India   |
| 6  | Hidge G.G.                                | CLOUD COMPUTING IN LIBRARIES   |
| 7  | Rathod Mandakini Shirang, Kulkarni J N    | Security of Library Infrastructure in Digital Era                                |
| 8  | Jewalikar Anil                            | Cloud Computing and libraries  |
| 9  | Patil, Shubham U.                         | QR CODE USE IN LIBRARIES   |
| 10 | Mahindkar Ravikant N.                     | SPREADING KNOWLEDGE THROUGH SOCIAL NETWORKING SITES                              |
| 11 | Pawar Kuldeep P.                          | CLOUD COMPUTING APPLICATIONS FOR LIBRARIES                                       |
| 12 | Sidam Kalpana Abarao                      | Important Role of Cloud Computing in the Field of Library Science for the Users. |
| 13 | SAYED ANEES MOINODEEN KALE SACHIN BHAURAO | ROLE OF CLOUD COMPUTING IN LIBRARIES   |

#### Theme 2. Libraries for Next Generation

- |    |   |  |
|----|---|--|
| 1  | Rathod Sukhalal S, & Pise D.T.  | MANAGEMENT OF KNOWLEDGE INFORMATION  |
| 2  | Vyallj Sambhaji P.  | The Use of RFID Technology in Libraries and Role of Librarian  |
| 3  | Pathade Ashok .L.   | RFID Security Systems for Libraries  |
| 4  | Katake Mahavir  | APPLICATION OF WEB 3.0 :AN OVERVIEW  |
| 5  | Patnala RK Kishore & Birangal Vaijyanath  | Library webpages of Agricultural Universities in Maharashtra: An Analysis  |
| 6  | Bomble Raju Balasaheb & Sulsule Shobha & Abhishek Patil & Pereira Aldria Venencia | PERFORMANCE OF RFID TECHNOLOGY AT K.S. GOA STATE CENTRAL LIBRARY: A CASE STUDY   |
| 7  | Gore Rajesh B.  | RFID Technology in Libraries   |
| 8  | Pensalwar Laxmikant B.  | Podcast Based Services a New Boon for Indian Libraries   |
| 9  | Nagapure Bhagwan K. & Paradkar Ashwini  | Knowledge Organization of LIS in Dewey Decimal Classification Schedule' from 15 <sup>th</sup> edition to 23 <sup>rd</sup> edition. |
| 10 | Rathod Dinesh   | Management of RFID in Libraries  |

## Performance of Rfid Technology at K.S. Goa State Central Library: A Case Study

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### Abstract:

RFID is one such technology which can be used not only for security purpose but also in circulation operations, location of library materials, stock management, high speed inventorying. Moreover, the application promises to increase efficiency, productivity and enhance user satisfaction. RFID technology helps the library management to offer more secure and foolproof library services to their users. It helps a librarian in providing the users with optimum utilization of resources.

This research has found that RFID is serving a variety of functions in K.S. Goa State Central Library relating to stock management, security and issuing & also analyze the Performance of RFID Technology. The survey focuses on the library service and patrons satisfaction. The research supported an implementation project in K.S. Goa State Central Library, where the library staff were able to use the findings to good effect to create a business plan.

### Key Words:

RFID Technology, Barcode Technology, Tags

### **Introduction:**

RFID (Radio Frequency Identification) is a technology that incorporates the use of electro-magnetic or electro-static coupling in the radio frequency (RF) portion of the electromagnetic spectrum to uniquely identify an object, animal, or person. It is an automatic identification method where data can be stored and retrieved remotely using devices like RFID tags. The tag is also known as an "electronic label", "transponder" or "code plate", is made up of an RFID chip attached to an antenna, transmitting in the kilohertz, megahertz and gigahertz ranges.

RFID is a technology which uses radio frequency electromagnetic fields to identify objects carrying tags when they come closer to a reader. However, RFID cannot be reduced to one technology. It uses several radio frequencies and many types of tag exist with different communication methods and power supply sources. It is the combination of radio broadcast technology and the radar.

Today, the RFID technology is used as an integral part of business systems by many business houses, including Libraries and Information Systems. It is the technology which is presently being adopted by libraries for speeding up check-outs, keeping collections in a better order, better control on theft, non-returns and misfiling of library material. This is a rapidly developing technology and has witnessed significant advancements in just a few years displaying no sign of having reached the limits of its potential.

RFID is one such technology which can be used not only for security purpose but also in circulation operations, location of library materials, stock management, high speed inventorying. Moreover, the application promises to increase efficiency, productivity and enhance user satisfaction. RFID technology helps the library management to offer more secure and foolproof library services to their users. It helps a librarian in providing the users with optimum utilization of resources.

### **Definitions of technical Terms:**

#### **RFID Technology:**

It is a wireless technology that lets you identify objects that have been fitted with special Radio Frequency Identification tags.

### **Barcode Technology:**

A barcode is a graphical representation of a product's identifying information formed by a two-dimensional pattern of black and white shapes. They are read by optical devices, such as a barcode reader or scanner. Barcodes are used to automate the transfer of product information, such as price, from the product to an electronic system.

### **Need of the study:**

Rapid advances in Information Technology have forced the librarian community to re-design their services, information products, incorporating new technologies, upgrading information resources and changing the way to their user community. As a result, librarians are facing new demand, new expectations and new security challenges. The modern technology not only provides value-added services but also provide a better solution to protect the library collection. The RFID Technology is one of them.

In the library, many items were not traceable. It was very difficult to trace the misplaced books because of the size of the collection. To locate a book, it sometimes used to take 2-3hrs or even 2-3days. However, using the RFID hand reader, library staff is able to trace any item in a few minutes. The RFID hand reader allows accession numbers of missing books to be stored and when the staff scans through the stacks with the hand reader, an audible "beep" indicates the location of the missing item.

The study was carried out to investigate the need for such a technology in a small specialist library service and to support possible RFID implementation at the K.S. Goa State Central Library.

### **Objectives of the study:**

Considering the topical and subject scope of the study the following objectives are framed for the present study. These are as follows:

1. To know how the RFID technology helped to the K.S. Goa State Central Library.
2. To explore the different RFID components used for the library system.
3. To identify the challenges faced by the library in implementing RFID.
4. To know the problems faced by the library staff while using RFID technology.

5. To give suggestions for better utilization of RFID technology in libraries.

### **Hypothesis of the study:**

Keeping in view the above objectives of the present study, the following hypothesis have been undertaken considerably.

H=The RFID technology has been of great use for the library as it saves time of both the staff and users.

### **Scope and Limitations of the Study:**

The topic of research is “**Performance of RFID Technology at K.S. Goa State Central Library: A Case Study.**”The library is located in Panaji, the capital city of Goa.

The study deals with the overall performance of the library after implementing RFID Technology. The study is regarded as preliminary. It is limited to the use, implementation and benefits gained in adopting RFID technology at K.S. Goa State Central Library.

The study is restricted to the geographical area of Goa. Therefore, it is time consuming for the researcher to conduct research. The observations and the results drawn from this study will provide a manifestation about costs and benefits of RFID technology to libraries that are planning to implement this technology in future.

### **Research Methodology:**

The term ‘methodology’ means, “the techniques and frames of references by which researchers approach and carry out an enquiry.” (Busha and Harter, 1980).

Researcher has used a descriptive and survey method for this particular study. Researcher has selected K. S. Goa State Central Library as a unit for the in depth study. For the data collection, questionnaire and interview techniques has been used.

### **Sampling of the Study:**

The data has been drawn from the response from the librarian and the senior library staff. Also considering the library users as the respondents to carry out the survey. For this particular study, researcher has selected the K. S. Goa State Central Library as a sample unit.

## Analysis and Interpretation of Data:

### Introduction:

The present study has been undertaken to analyze the Performance of RFID Technology at K.S. Goa State Central Library. The survey questionnaire is guided by the research questions and is the data collection tool to gather the statistical data. The survey focuses on the library service and patrons satisfaction. The study was conducted wherein the questionnaire was provided to the users of the library and was asked to fill it up accordingly. Total no. of 70 questionnaires was prepared and was duly filled by the users.

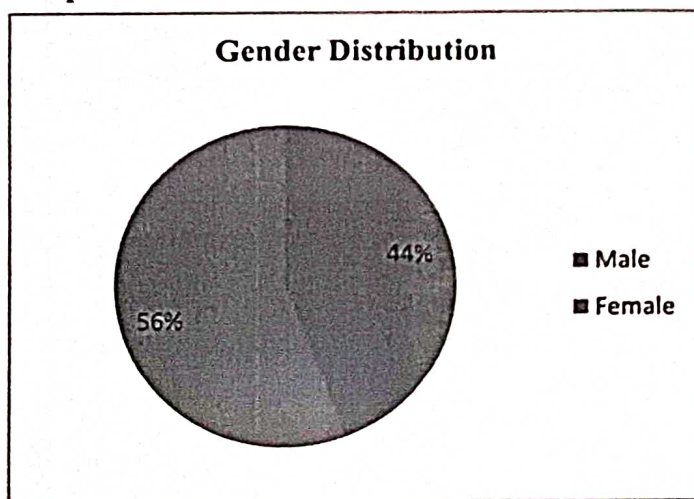
A small quantitative survey questionnaire has been conducted with 70 respondents.

**Table No.1: Gender Distribution**

Gender	Score	Percentage (%)
Male	31	44.29
Female	39	55.71
<b>Total</b>	<b>70</b>	<b>100</b>

Table No.1 shows the gender distribution of the respondents. Above Pie chart shows that the 39 respondents i.e. (56%) are females and the 31 respondents i.e. (44%) are males.

**Graph No.1**

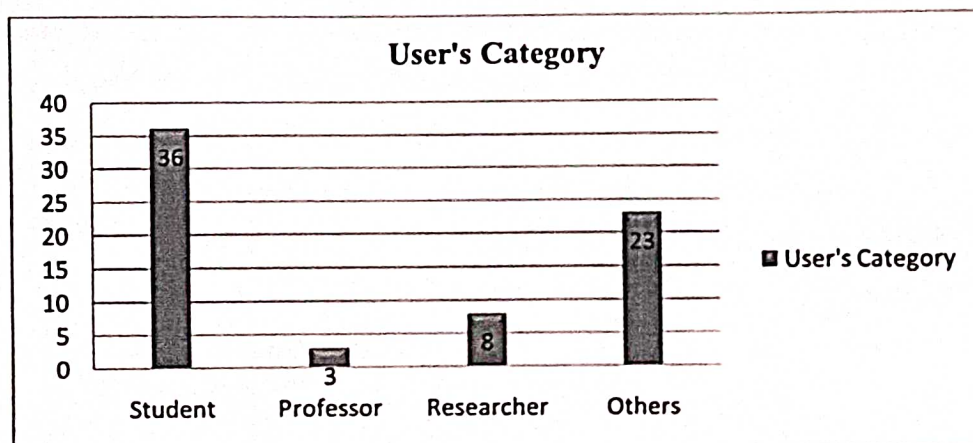


**Table No.2:Categories of User**

Sr. No.	User Category	Score	Percentage (%)
1	Student	36	51.42
2	Professor	3	4.28
3	Researcher	8	11.42
4	Others	23	32.88
	<b>Total</b>	<b>70</b>	<b>100</b>

Table No.2 indicates that there are four categories of the user namely Students, Professors, Researcher and Others. This table shows that 36 respondents are the Students i.e. (52%) of the total respondents. There were 8 respondents who are the Researcher i.e. (33%). Three (3) respondents were the Professor i.e. (4%) and the rest 23 respondents fall in others category which include the professions like Engineer, Librarian, Architect, Web designer, Doctor and In-service and Retired Government employees covering the (33%) total sample.

**Graph No.2**



**Table No.3:Awareness about RFID Technology**

Response	Score	Percentage (%)
Yes	44	62.86
No	26	37.14
<b>Total</b>	<b>70</b>	<b>100</b>

Table No.3 deals with the question whether the users anytime heard or read about the RFID Technology. Forty four (44) respondents (63%) are known about the RFID Technology whereas the no. of 26 respondents (37%) never heard or read about RFID Technology at all.

Graph No.3

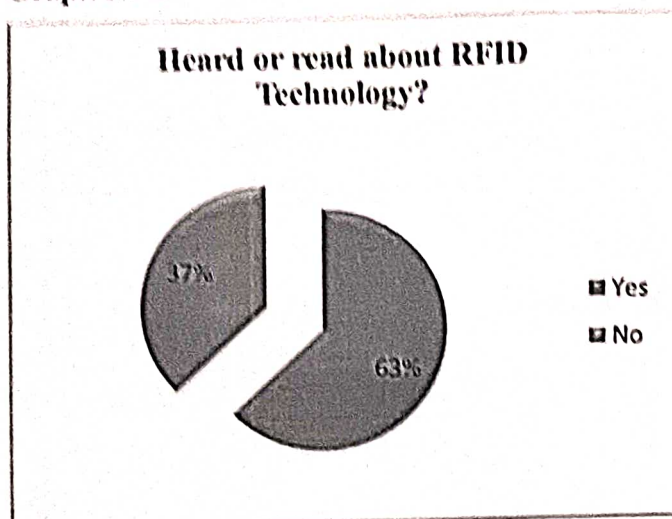


Table No.4: Sources from which the RFID Technology is known

Sr. No	Information Sources	Score	Rank
1	Newspaper	17	1
2	T.V	4	5
3	Books	13	2
4	Library	8	4
5	Internet	11	3
6	Others	8	4

Based on the above Table No.3, the users who responded yes to having known about RFID Technology were asked for the sources for the same. Table No.4 gives details about the different sources. The maximum no. of 17 users came to know about RFID Technology through Newspapers, 13 users mentioned about Books, 11 users mentioned about Internet, 8 users said that they came to know about the RFID Technology from the K.S. Goa State Central Library itself, few 4 no. of users mentioned about Television and 8 users mentioned about the other sources like Colleagues and Friends.



Graph No.4

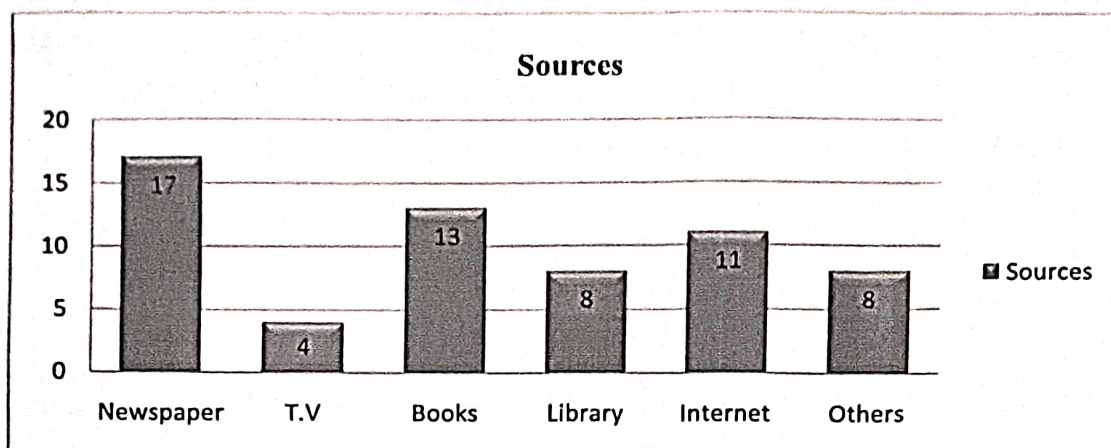


Table No.5:Benefits availing from RFID

Sr. No	Benefits	Yes/ No
1	Facilitates open access	✓
2	Self check-in&check-out	✓
3	Book drop service	✓
4	Smart card	✓
5	Document delivery facility	✓

Table No.5 shows the benefits availing from RFID Technology. The library provides open access resources to the users/ It also provides the use of self check-in and check-out kiosks to issue/return books by oneself. It also provides book drop box facility and at the same time it also provides Document delivery services to the users.

Table No.6:Objectives for using RFID System

Sr. No	Objectives	Y/N
1	Self check-in& check-out by the users	✓
2	Reduce the work at circulation section	✓
3	Reduction in circulation section staff cost	✓
4	Quick access to collection	✓
5	Increase security	✓
6	Reduce theft	✓

7	Better inventory control	✓
8	Membership details	✓
9	Lending history	✓
10	Increase equipment reliability	×

From the above table, it is understood that, the RFID technology is used for various tasks like Self check-in & check-out by the users, Quick access to collection etc.; and reasons such as Better inventory control, Increase security, Reduce theft etc.

**Table No.7:Data stored in RFID Tag**

Sr. No.	Bibliographical Details	Y/N
1	Author's Name	✓
2	Title	✓
3	Sub-title	✓
4	Subject	✓
5	Call No.	✓
6	ISBN/ISDN	✓
7	Price	✓
8	Publisher	✓
9	Year of publication	✓
10	Edition	✓
11	Language	✓
12	Member's details	✓

RFID tag contains all bibliographical details that give in table number 7 i.e. Author, Subject, Title, Members details etc.

**Table No.8:Reason for adopting RFID Technology**

Sr. No.	Reasons	Y/N
1	Saves time	✓
2	To attain expected security	✓
3	Quality of services	✓
4	Cater user's needs	✓
5	Attains new standards in the library services	✓

**Table No.9:RFID affects**

Sr. No.	Factors	Y/N
1	Technological infrastructure	✓
2	Training & development	✓
3	Ways of speaking/ work culture	×
4	Job profiles/structure	×

While performing the job of librarianship with the RFID technology, the technological infrastructure should be well established. It also required scientific training of to run the system.

**Table No.10:Problems faced by Users while issue and return books through RFID technology**

Sr. No.	Reason	Score
1	It requires a lot of time	12
2	Server problem	40
3	Electricity issues	3
4	Untrained staff	0
5	None	26

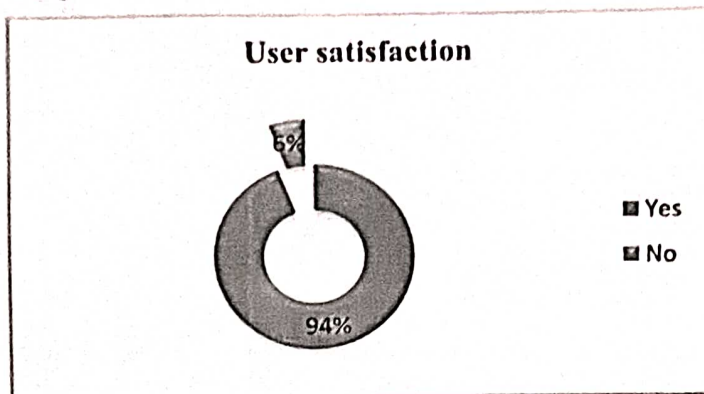
Table No.10 reveals the various problems faced by the users while issuing/returning books through RFID technology. 40 no. of the respondents faced server problem, 12 no. of the respondents said that this process requires a lot of time, a no. of 3 respondents mentioned about electricity issues and total no. of 26 respondents did not face any problem at all while issuing/returning books through RFID technology.

**Table No.11:Satisfaction of users by the services provided by the library.**

Response	Score	Percentage (%)
Yes	66	94.3
No	4	5.7
<b>Total</b>	<b>70</b>	<b>100</b>

Table No.11 reveals the satisfaction of the users for the services provided by the library, whether the users are satisfied or not. Majority of 95% users are satisfied by the services provided by the library whereas only 5% of the users are not satisfied with the library services.

Graph No.5



**Conclusion:**

This research has found that RFID is serving a variety of functions in K.S. Goa State Central Library relating to stock management, security and issuing. The research supported an implementation project in K.S. Goa State Central Library, where the library staff were able to use the findings to good effect to create a business plan.

It is important to educate library staff and library users about RFID technology before implementing a program. It may be good for librarians to watch developments in RFID until the cost of tags comes..

RFID technology has several advantages over the current barcode systems being used at libraries worldwide. For the libraries that use it, RFID promises to save time and operate more efficiently and effectively than the barcode systems. Some of the compensations of RFID over a barcode system are that, RFID tags can be used for security as well as for status control.

thereby eliminating the need to attach security strips to library items, RFID systems make self-checkout faster and easier for library patrons and RFID portable scanners can take inventory by just being passed slowly along the library shelves, without having to handle each item individually.

Although the RFID Technology is quite expensive, still it has yielded excellent results for many libraries throughout the world. It makes the management process in the library more convenient.

Finally, we can say that despite of all its limitations, the RFID Technology is the future of libraries, by remembering that it is a supporting technology and not a competing one.

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**Scope for further Research:**

While the study was in progress, many possible ideas for related research occurred. However, it was not possible to deviate from the objectives and the hypothesis set for the current study. Such studies are listed here for other researchers to persuade.

- Comparative Study of Bar code technology and RFID Technology in other types of libraries
- Perspective of the user towards the Use of RFID technology in libraries
- Impact of RFID technology for rendering library services and facilities
- Perspective of the Library staff towards the Use of RFID in libraries
- Importance of RFID technology in the evaluation and assessment agency like NAAC