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RFID BASED LIBRARY MANAGEMENT SYSTEM

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ABSTRACT

In recent years drastic improvements have been accomplished in the field of Radio Frequency Identification (RFID), automated RFID object identification, theft detection by using RFID technology etc. RFID recognition and identification is a technology that utilizes the radio frequency for its operation and works in the radio frequency range. The RFID recognition system mainly makes use of the RFID tags and readers for the object identification. Before the development of RFID technology, barcode technology was being used and was popular. The usual barcode technology is of less cost compared to RFID but RFID system have major advantages compared to normal barcodes systems. This work shows the application and feasibility of RFID technology in the field of library book management system. The execution of the RFID in libraries depends vigorously on the RFID detection identification of the tagging object. Thus, in this paper considers survey of the execution work that will be done has been introduced.

Keywords: *Bar code technology, Library Management system (LMS), Radio Frequency Identification (RFID), RFID readers, RFID tags.*

I.INTRODUCTION

Radio frequency identification is based on the radio frequencies and is able to identify the objects much easily. The RFID technology is currently being used in various departments such as departmental stores, business shops, etc. the object once sold have the least chances of returning back to the library ,a single book is issued to the user as per their necessity and they need to return the book within the due date. A single book may be used by various uses as per their requirements. Thus, there is a need to maintain data base by the librarian or the library administration.

Currently most of the libraries use the barcode technology to maintain the record of transaction of books. A bar code can only store a identification number. But, whereas the RFID tags can store many information such as the book name, author name, the location of the book in the library. Thus, it has become a hot interdisciplinary topic involving the RFID identification, which is uniquely used for the identification of the books in the library.

Hence the major concern is to make the library user to get easily the book he requires from large heap of books and maintenance of data base of the transaction of each book.

The need of personal identification of a person for whom the book is being issued has gained its preference in the field of Library Management System (LMS). So, thus many libraries across the world have started to adopt and develop the RFID technology to identify and verify the person and book that being issued from library.

Amongst all the other library management techniques, the RFID technologies have gained into importance. Almost all other techniques that have been proposed the RFID technology is in the budding stage and is slowly replacing the traditional bar code technology. This technology also proves that it can be used for educational purpose also other than the commercial products that is being used.

II. LITERATURE SURVEY

A number of researches have worked on the RFID technology in all the fields in the identification aspects as well as the recording of the transaction aspects around the globe. In this section, only a brief literature survey of the recent works done by various authors is being presented with respect to the work up in this existing and application oriented research field.

Terence Jerome Daim and Razak Mohd Ali Lee from University of Malaysia proposed the 3D RFID based search system [1] in which they discussed about the identification of books based on their size, length etc. This system makes use of the antennas placed in each book racks which identifies the book. Thus the paper discusses the identification of the book based on the book size.

Yujun Li, Tengfei Yang and Zhiqiang Liuof Qinghai university of China proposed the library management system based the web services [2]. This paper discusses about the web application that can be implemented in the library.

In majority of the work done by the different researches author that is presented in the previous paragraphs, there are some disadvantages/burdens/drawbacks. We have sincerely consider this aspect in our research work and new contributions are intended to be produced in the due course of the present research work along with the real time experimentation.

III. PROPOSED METHODOLOGY

The each user of the library is provided with separate cards that are used for the identification of the person to access the library materials. Once, the person enters the library he the swipe the RFID and which is given to him and the information regarding inventory of books in the library can be access by him. Once, the person brings the book from the rack, the RFID and with is placed within the book is automatically detected and the book transaction is recorded. Thus both the searching of the book and the book transaction is made much more easier

and simpler. Since the library consists of several menders of book, each book has be given a individual RFID tag and the tagging process has to be completed previously. The issuing of the RFID identity cards for the users also has to be given completed previously. The issuing of the RFID identity cards for users also has to be provided necessarily.

During the transaction of the book ,the user can be see the details regarding the transaction of the book such as the person hence for whom the book is being issued, the book title, author name ,book issue date and due date of the return also.

Thus this helps both the administration and the user in easier transaction of the book. If the book is nopt returned within the due date then remainder message can also be forwarded for the book user. If the book is taken without registering then the buzzer sound at the exit gates can also be implemented.

IV.ADVANTAGES, DISADVANTAGES AND APPLICATIONS

4.1 Advantages

1. Easier transaction of books and is both administrates and user convenient.

2. Reduces the work load for the librarian/administrator.

3. Easier to search the location of the books.

4. SMS Services is provided regarding the due date of the book.

5. Theft detection is Easier.

6. RFID Cards can store into regarding the books than the tradition barcodes.

7. Long life validity of the RFID tags.

4.2 Disadvantages

1. The installation cost is high.

2. Susceptibility of tags.

3. Reduction of Staff duties.

4.3 Application

1. This technology can be implemented in medium and large scale libraries.

2. The technology can be extended for other fields such as identification of goods is necessary. Examples Shaping malls, business centre etc.

V. CONCLUSION

The aim of this research is to provide a good service to the library user and to record the transaction of the books automatically the work burden of the librarian is reduced and the man power required is also reduced. It is easier to implement in the real time management system. The system is designed for the step by step real time library scenarios and test cases that may occur. The problem that arises during the design of the module are trouble shouted so that it minimises the error cases.

This idea is implemented with an active RIFD tag since the active RFID tag is heavier and it become too difficult to place inside a book, there is a plan of changing the active RFID tag to a passive RFID tag to reduce the for the transaction.

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