

# THE SMART LIBRARY FOR BOOK PLACEMENT

Lokesh S<sup>1</sup>

<sup>1</sup>Student, Department of Computer Science and Engineering, Adhiyamaan College of engineering, Tamil Nadu, India

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**Abstract** - Library management system is a software that helps in upholding the library in smart way by using computerized system. This software consist of so many features which are not available in normal library. The features that are included in this software such as login details of student and faculty, book barrowing, book replacement details, searching of book by using reference ID etc., .Library management system is used to overcome the problems of wasting a time in physically approaching library and searching for a book for so many hours and finally not finding out the book. Even maintaining a details of check in and checkout of students and book borrowed and books left out in library is difficult. The verification of books left out in library itself takes one full day. This will put a lot of human power in vain. This difficulty can overcome by using RFID technology.

**Keywords:** RFID Technology, Smart phone, Library Management System, Self-Management, barcodes.

## 1. INTRODUCTION

Library is a place where a person of different age can gain a knowledge, but with increasing number of researchers a new researched books will be keep adding to libraries. Physical sorting of these books in shelves become very difficult and time consuming. This in turn result in wrong placement of books by librarian. Then a person will find it difficult to locate a book or journal paper or magazine because the exact location of book returned by the database differs from its current location. Thus library management system by using RFID technology is used to facilitate a person in tracing a book in short duration of time. The information that is required by this system for tracing a book in short duration is book cover page. Because the book cover page consist of information such as book title and author name. This two

information is used to draw a reference id to a person. Based on reference id, a person can understand whether the book is available or not. If it is available then they can find out the location of book inside the library. Thus this reduce the time in searching a book if it is not available.

## 1.1 EXISTING SYSTEM

In today's library system, we will use the physical or barcode technology. Every book in library is given with a barcode. This barcode is operated manually. Based on the barcode the books are issued and returned. The drawback of using barcode is only one barcode is scanned at a time. This makes a very big queue in library for issuing the books. The disadvantages of existing system such as,

- This leads to more power intake.
- Lack of security features.
- Time consuming.
- Misplacement of books/journals/magazines.

## 1.2 PROPOSED SYSTEM

The drawbacks of existing system can overcome by using rule based technique and RFID(Radio Frequency Identification).RFID technique is a form of wireless communication that includes the use of electromagnetic coupling to distinctively identify the things(such as person,animal,tags etc.,). This system make use of various elements such as RFID reader,FPGA kit,GSM technology(modems),LCD display,PC,tags,ZIGBEE,AT89C51,Motar interface circuit.

The advantages of proposed system are

- Wastage of time is reduced in searching a book based on reference id.
- AT89C51 microcontroller is consumes less power.
- RFID tags for authenticating the user.

## 2. SYSTEM ARCHITECTURE

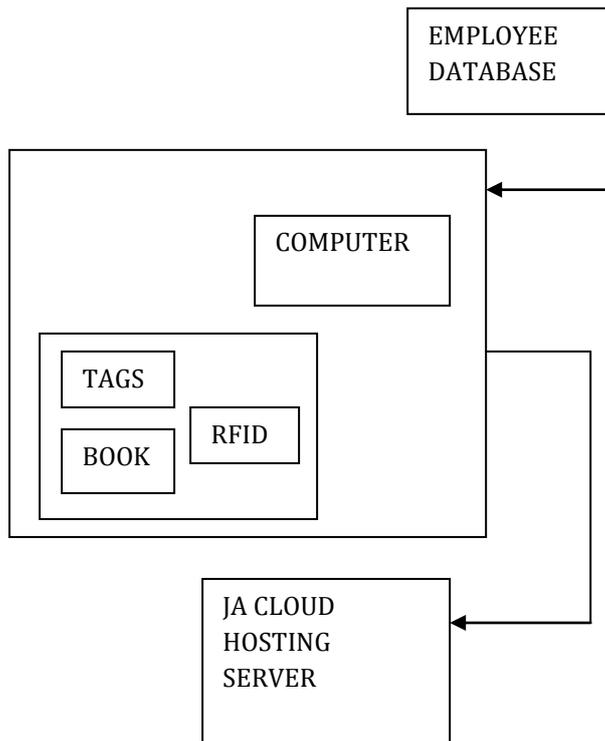


Fig: a- Mechanism of Library System

## 3. IMPLEMENTATION

Initially the users are provided with a RFID tag and tag ids are stored in a database. Once the user enter into the library the tag is placed on RFID reader. If authentication is done properly then user are allowed to enter into the library and allow them to access the digital library. Otherwise, the user will not be allowed to use.

The RFID tag can store 2KB of user identification number/data. MYSQL database server stores the information about the name of student, department, and mobile number and so on.

Once the user ID and stored database ID are matched by using GSM (Global system) technology the mobile number associated with the ID is fetched and sent SMS to the registered number stating that they have entered into the library.

There are various number of protocols used such as User Datagram Protocol for audio and video flowing, TCP/IP for data transfer, HTTP for accessing web pages. Microcontroller AT89C51 are used because less power consumption. The webpages are created by using HTML language and the connection between MySQL database and pages are done by suing PHP language.

Once the SMS is received successfully, the user clicks the link in SMS, then it redirects to the home page of library [2]. The home page has login details. Student can login to their account by providing username and password. Search the database for the book by using author name or title.

Once the book is issued then user can check out of library. Once the user is checking out the green bulb glows. If user carries unissued book then alert symbol glows.

## 4. CONCLUSION

The growth in the field of technology is a non-stoppable process. As the technology keep growing, one can imagine the advancement of technology in future. The project is used to reduce the bulky on librarian to maintain the check-in and check-out, searching of book by user.

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