

# ANDROID BASED ADVANCED BOOK LOCATOR AND LIBRARY MANAGER

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## ABSTRACT

*An Automated Library can provide better library services to their users and can maintain the library more properly which a manual library can't do. In this proposed system, user can search the books required by using an Android mobile application itself. The user only needs to be in the Wi-Fi range of library. The app that available in users mobile will give the map of library and the position of the book will be notified. Thus it makes easier for the user to find the book. The user can directly issue the books from the app itself by just scanning the QR code glued on the books. Also an RFID based system is used for theft detection.*

**Keywords:** *Advanced Book Locator, Library Automation, QR Processing, RFID theft protection*

## I. INTRODUCTION

In the age of Information and Communication Technology library scenario has been drastically changed in terms of collection, organization and services. Simultaneously, user's demands and attitudes have changed in its kinds. Also the information seeking behavior of user has dynamically changed. They want relevant, authentic information very quickly within a single place at their hand. Nowadays no user has time to search the required and relevant information from the dense heap of information collection. They have no time to go shelf by shelf to pick up books. This development in library field has brought the idea of Library Automation.

## II. HARDWARE AND DESIGN IMPLEMENTATION

This proposed system is based on two technologies (1) RFID detection (2) QR code scanning.

Radio frequency identification (RFID) is a technology that incorporates the use of electromagnetic or electrostatic coupling in the radio frequency (RF) portion of the electromagnetic spectrum to uniquely identify an object, animal, or person.

Quick Response (QR) code is the trademark for a type of matrix barcode or two-dimensional barcode. A barcode is a machine-readable optical label that contains information about the item to which it is attached. A QR code uses four standardized encoding modes to efficiently store data; extensions may also be used.

### 2.1 System Software

It must be a running operating system. This operating system is used to store the information's in the database. The general theme behind a database is to handle the information as an integrated whole. A database is a

collection of interrelated data stored with minimum redundancy to serve many users quickly and efficiently. All the data regarding the library is stored in the database.

**2.2 RFID Reader**

The RFID reader reads EM4100 family transponder tags that are brought in proximity to the reader and output the unique tag identification number through RS232 serial port @9600 bps. The RFID card Reader is designed specifically for low frequency (125 kHz) passive tag. Frequency refers to the size of the radio waves used to communicate between the RFID systems components. Just as tuning radio to different frequencies in order to hear different radio stations, RFID tag and reader must be tuned to the same frequency in order to communicate effectively.

The RFID systems use data strings stored inside RFID tags to uniquely identify people or objects when they are scanned by an RFID reader.

**2.3 Android App**

It is an android phone application, which is the user end. Where the user can view and search for the book information stored in the system software. In this application there is a QR code scanner, which scans the QR code glued on the book and can request for issuing the book by QR code scanning. It also contains the map of the library which shows the exact position of the each book in the library.

**III. DEVELOPED MODEL**

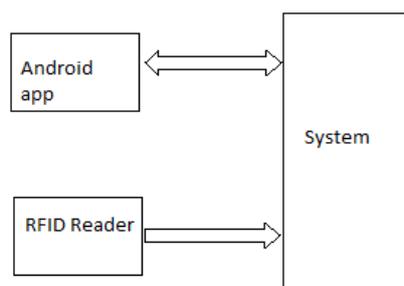
In this paper, we discuss the idea of creating an automated library system. The details regarding all the books are stored in the database. The exact position of every book is stored in the database. The android phone is connected to the system through Wi-Fi. From the android system user can search the books user want to access. The book availability and the map of library are provided.

After getting the book user can directly issue the book by just scanning the QR code stick in the book. The request is send to the system. Then the system will respond back to app whether it is issued or not. User can take away the book if it was issued.

Each book has a unique RFID tag associated to it. When the book is taken out the RFID reader reads the 12 digit hexadecimal value from the RFID tag of the book. If the book was issued successfully no action performed. But if its not issued alarm will ring and the details of the book is displayed on the system. RFID is used to protect the books from theft.

The return date of the book will be stored both in the system and the android app. Remainder can be set on the app if we want.

**IV. FIGURES AND TABLES**



**Fig 1.0 Hardwire and Software connection**

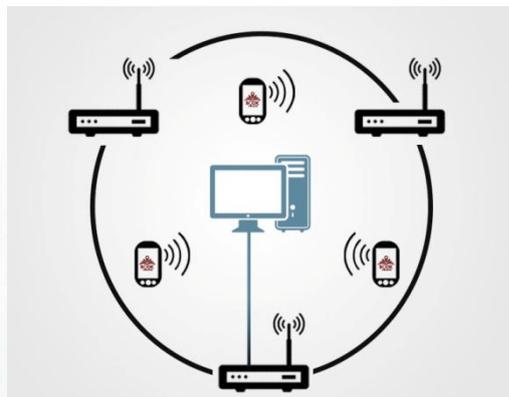


Fig 2.0 EM18 RFID Reader      Fig 3.0 Connection between android phones and system



Fig 4.0 Library Process

## V. CONCLUSION

Nowadays Library Automation has become the buzz word in library profession and has become a bare necessity for any libraries. An automated library provides better service to their users and maintain the library more properly. The success of any library automation program depends upon its proper planning and execution. The record keeping activities and various record generations become very easy in an automated library system. This system not only allows the librarian more time to dedicate to improving the customer service, but it also makes the sharing of materials.

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**Journal Papers:**

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