

# SMART LIBFO MANAGEMENT SYSTEM

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**ABSTRACT - QR code (acronym of Quick Response Code) is the trademark for a type of matrix barcode (two-dimensional barcode) first designed for the automotive industry in Japan. A barcode is a machine-readable device. This optical label contains information about the item to which it is attached. A QR code uses the four standardized encoding modes-numeric, alphanumeric, kanji and byte / binary- to efficiently store data and extensions can also be used. The QR Code system has become popular inside and outside the automotive industry due to its quick readability and greater storage capacity compared to standard UPC barcodes. A QR code consists of black square dots arranged in a grid which is square in shape and that will be on a white background, which can be read by an imaging device such as a camera and preceded for processing using Reed–Solomon error correction until the grid image can be accurately interpreted. Then the required data are extracted from patterns present in both horizontal components and vertical components of the grid image present on white background. In this project we will be using Quick Response codes for data mining and data analysis on different sectors of marketing.**

**Key Words** --Quick Response Code, Imaging Device, Reed–Solomon Error Correction, Data Analysis, Data Mining

## I. INTRODUCTION:

The purpose of this study is to determine the library user activities of taking and returning books easily by scanning them through QR code scanner. User authentication through the medium of behavioral biometrics is comparatively less established than the use of physiological biometrics. Smart Library Management System is a computerized system to make library transactions efficient. It enabled manual transaction in library into automated. Android operating system is mainly designed for Smart Phone and tablet devices. The Android platform has an embedded feature named Google Play Store. It enables the developers to distribute the applications to the World Wide potential users. A library usually includes books, periodicals, video tapes, films, maps, cd, DVD, newspaper and so on. The size of the Library changes from place to place depending on the items it contains. Initially Computer played a very major role in the banking sector and other sectors. Later on the introduction of the Internet made the computers to go a long way. Internet made the Users to access their database 24x7 which was stored centralized. Later emerged the mobile technology [12] and now mobility has become everything. . A college Strengthens its educational level through the advancement of its library. Teachers, laboratories and libraries are main components in transmit effective engineering education to them.

The aim of an engineering college library is to facilitate the Engineering professionals in enhancing and updating their skills and knowledge, and to provide them data and information regarding new innovations, views, theories, engineering education, and research. This will in turn increase the quality of teaching and upgradation of student's marks and results. The main role of engineering college library is to collect and organize the recorded information in engineering and allied subjects to meet the needs of users and students. Communication and Information Technologies are increasingly used to collect, store, retrieve and generate a great amount of information to help engineering professionals and students. Information Technology has an intense impact on library operations, Information resources, staff skills development requirements, services and users' expectations. Information technology has virtually infinite number of potentials for different and variety of useful applications. It also uses quick response coder and barcode scanner.

### A. Why This Survey

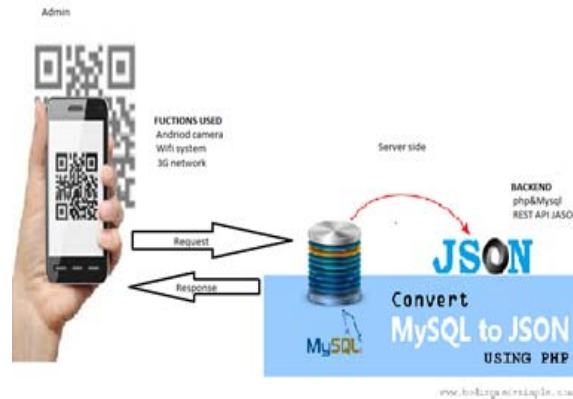
Research on smart library management system gives easy understanding of users' activities with library. It is easy to access through mobile phone. By this survey Progress time can be reduced. It is cheap and best. It needs less man power to view the details of users'. By this survey human error can be reduced.

## II. APPROACHES TO AUTHENTICATION

Here mainly using the android mobile camera to scan QR code. All the type of image readable camera can read the QR code. We are developing Android application for read the QR code by using ZXING Library. This Android Application for Library Admin who is going to handle the entire student database, the Android app has a QR scanner its read data like book id, book name etc. Then the app returns the data to server according to the student registration number. The user can see the availability of the books require and can see already existing details of the whole collections of books.

## III. IMPLEMENTATION:

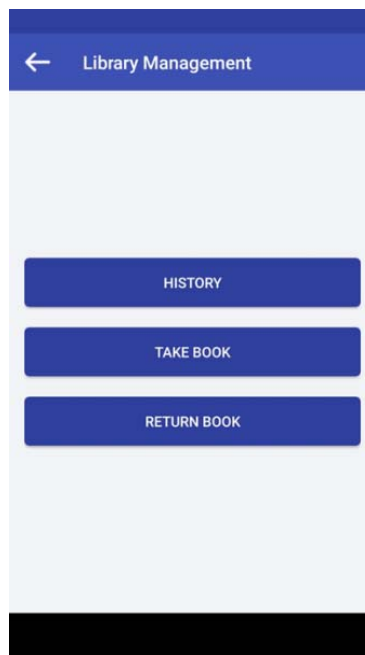
### 1. SYSTEM ARCHITECTURE:



Used QR and Barcode TECHNOLOGY for efficient data input. Encode phone numbers and text messages. QR Codes additionally prompt your mobile device navigates to an internet page actions like dial variety, send SMS, Save Reminders, save variety to Phone Book etc. QR codes may be decoded with on-line decoder like ZXing Decoder on-line, MiniQR, on-line Barcode Reader, Saint Patrick Wied QR Generator, QR Code Generator and Recovery. We can borrow books via Barcode. Scan student via QR code. Automated and secured logic system using QR Code. Marketing of Library products and their related services is essential to create a big awareness among the library users because for those who lack of information may not even be aware of these products and the related services available in your library. QR codes can be used to generate information resources, activities and events. Create need for information. Manage information explosion. Create awareness. Information dissemination. Connect with user community.

### 2. MODULES:

- Admin frame work
- Barcode scanner
- User activity



## 2.1 ADMIN FRAME WORK

It also has an option of admin login through which the admin will be monitoring the whole system. It has also a facility where student after logging in their accounts can see list of books given and distributed, its issue date and its return date and also the students can request the librarian to add new books by filling the book request. The librarian after logging into his account i.e. admin account can generate various reports such as issue report, teacher report, student report and book report. Overall this project is being developed to help the students as well as the working person of the library to maintain and manage the library in the best way as possible and to also reduce the human efforts.

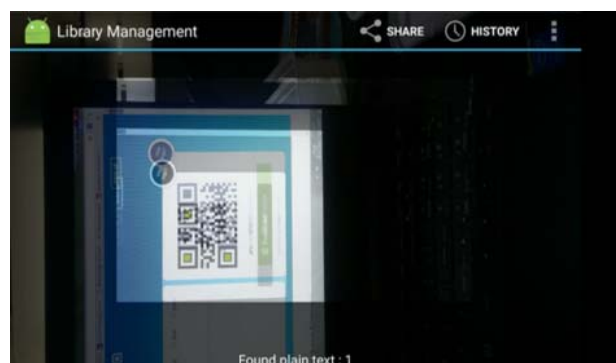
### 2.1.1 Issue books and return books

This feature allows issuing and returning books and also viewing reports of book issued.

System must be able to enter issue information in database. System must be able to update number of books. Systems must have facility to search if particular book is available or not before issuing the books. So the system should be able to enter issuing date and returning date information.

### 2.1.2 Register new book

This feature allows to add new books to the library. System must be able to verify information. System must be able to enter number of copies into table. System must be able to not allow two books having same book id.



## 2.2 BARCODE SCANNER

Nowadays mobile phones are implementing various different and new kinds of applications such as taking photos, taking videos and movie shooting by using embedded camera devices and this progress also depends on the camera device technique. For instance, at 2003 30% of mobile phones in Japan have embedded camera devices, and some of those have more than over mega-pixel range image sensor cameras. Also, the embedded camera devices can also be used as another new input interfaces such as for symbol recognitions. Also, the embedded camera devices can be used as new input interfaces such as for symbol recognition.

## 2.3 USER ACTIVITY:

### 2.3.1 User login

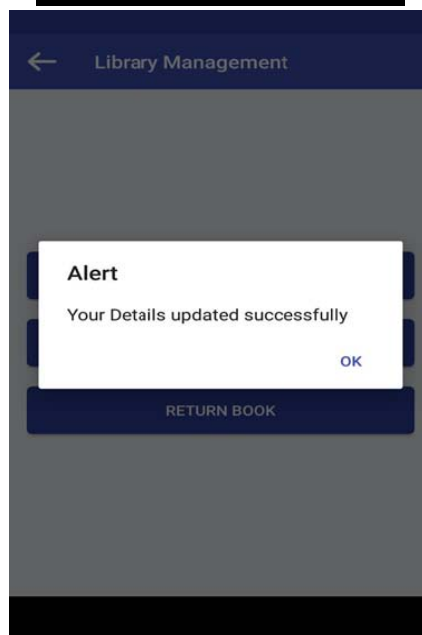
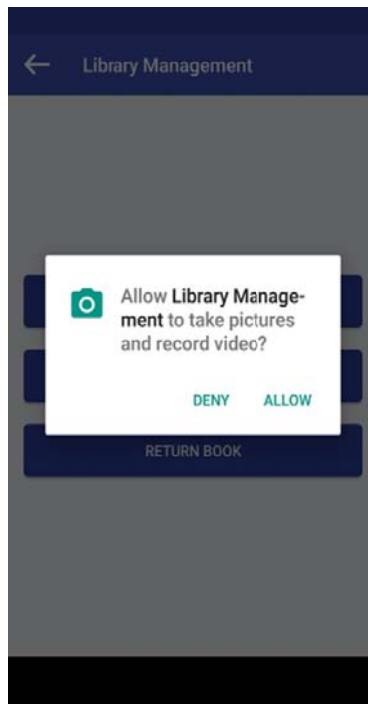
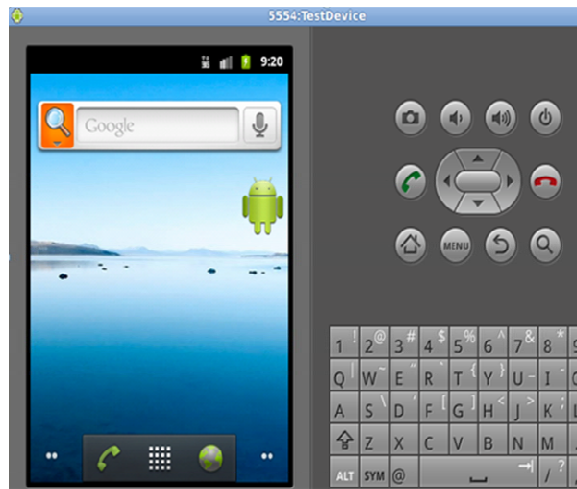
This option is used by the user whether it can be student or the staff of the library or the admin to login into system. They are required to enter user id and password before they are permitted or allowed for access or to enter the system. The user id and their corresponding password will be verified and if it is invalid id, then the user is not allowed to enter the system. This feature can be performed by all users to register new user to create account. System must be able to verify information. System must be able to delete information if information is wrong.

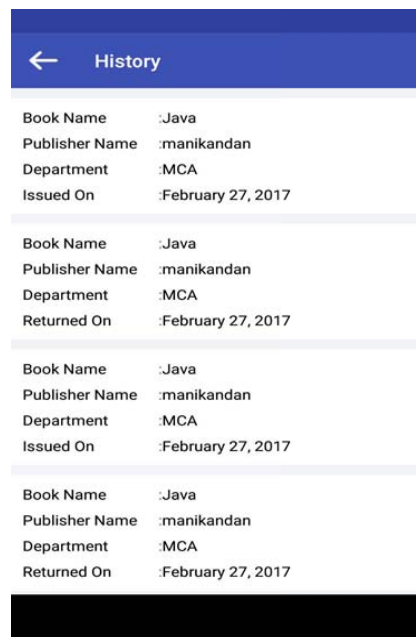
### 2.3.2 Register new user

This feature can be performed by all users to register new user to create account. System must have capability to verify information. System must be capable to erase information if information is wrong.

### 2.3.3 Search book

This feature is found in book maintenance part. We can search book based on book id, book name, publication or by author name. System must be able to search the database based on select search type. System must be able to filter book based on keyword entered. System must be able to show the filtered book in table view.





### CONCLUSION:

Quick Response codes look simple and mostly free of cost to create, but it creates new paradigm and dimensions to the library resources and services. Central Library, NITK is implementing QR codes to reach out user community and create awareness about its resources, services and events. QR code is such great technology which helped Library to cater most crucial user demand for access to information through mobile phone. Though the concept of Marketing Library products and services is not new, but marketing through QR codes will be a new and fun-filled activity to the students that is for user community as well as for the library professionals. Adoption of the Quick Response code in library marketing will help to increase and improve the services for users and will enhance the reputation of library and information services and professionals.

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