Pocket Library Or A Hybrid Library System

1. Introduction

1.1 Document Purpose

The main purpose of carrying out this project is to develop a hybrid library system for which an android-based application is developed to obtain the library of books by barcode and post/review the library results using a web-based library system. As we know, there is one and only one barcode that occurs in the world for each person which will never have duplication. So, a barcode library system can be known as the best authentication to detect the individual user record.

In pocket library first, any student wants to book for reading than going to Library open the Application and Scan the barcode. After scanning the barcode display the detail of the book. After press ok then open the confirmation box and click on ok then this book adds to this account for 15 days or whatever day. After student details and book details display in the admin panel. Admin panel in manage add a new book, show detail of book & details of the student. Send warning mail or message when 2 to 3 days are remaining.

1.2 Product Scope

The scope of our project is confined till our college’s library books which are available in our library will only display to the user. Users are confined only up to the members of our college i.e. teachers, students, non-teaching staff, other management bodies. As this application is built only for the members of the college so this app is not useful for any outsider.

1.3 Intended Audience and Document Overview

This project is mainly used by the faculties of the college, and also the students. The user will scan the barcode scanner for the book issue. At the return of the book, students will again scan a barcode to the barcode scanner for the second issue book, this process follow in all books of issue. They also check the book of particular students for each subject. The faculty has a module for generating the book issue report of the whole semester.

1.4 Definitions, Acronyms, and Abbreviations

The student management system has to handle more records and maintaining records is difficult. It was a totally manual process. Hence there is a need to upgrade the system with an application-based information system.

- SRS- Software Requirement Speciation
- BSI- Barcode Scanner Identification
- Subjective satisfaction- The overall satisfaction of the system.
- End users- The people who will be actually using the system.

1.5 Document Conventions

1) DDB -Distributed Database 2) ER – Entity Relationship

1.6 References and Acknowledgments

- Literature Survey of Barcode Recognition System
- https://www.educative.io/courses/grokking-the-object-oriented-design-interview/RMlM3NgjAyR
- https://www.iitms.co.in/library-management-system
- https://www.academia.edu/10240564/Library_Management_System_I_LIBRARY_MANAGEMENT_SYSTEM

2. Overall Description

2.1 Product Perspective

The product Pocket Library is an independent product and does not depend on any other product or system. The product is automated various tasks associated with handling student details and better organizing the stored information and optimum performance. And get the regular information of the user.

2.2 Product Functionality

- Accurate Identification
- Time-saving
- Book issue report generation
- Manage book
- Update user detail

2.3 Users and Characteristics

The users of our product are students, faculty, and the head of the department. All the users have different modules and functionality is provided. For each user, the common functionality is the Book issue and Book request. The students and scan their barcodes to the Mobile device and get the library Detail. So whenever students want to check their books they simply log in to the Pocket Library application and check the allover books. Faculty logs in to the Pocket library application and checks the book of all subjects. The faculty check all the books on the subject.

2.4 Operating Environment

Figure 2.1: Components of the library system

For this product, the mobile device is used the take books from the user. And to pass the data of barcode to the database the mobile device issued. To store all records on the server the internet connectivity is required. Admin side the computer system is necessary because the admin panel is web-based. All the data are stored in a single server.

2.5 Design and Implementation Constraints

The availability of the internet is required for the store barcode data to the server database. The mobile device is in working condition is necessary if any crashes occur then the system will become inconsistent. For this connectivity, the android phone is necessary because all the data are stored in the phone storage and then it will store in the database. Here we can use third-party services for the store database and services. Security of the less due to the third party sever. When the parallel operations are performed at the same time then it will be difficult to manage.

2.6 User Documentation

For the understanding, the product, providing the functionality manual and the working system which includes the connectivity of the mobile device and server. As well as for the access the admin panel provides the module and functionality.

2.7 Assumptions and Dependencies

For this product, if we assume that at the same time the number of students scans the barcode for the book issue on different devices then it will become inconsistent. Storing all records at a particular time is dependent. Here we use third-party servers so security issues will increase.?

3. Specific Requirements

3.1 External Interface Requirements

3.1.1 User Interfaces

1. Login Display

This is the main login in the system which appears in the Pocket Library Application.

1. Welcome View page

This view will be also on the device screen. This page means the device accepts the id & password data and identifies the person. So, on the screen, it will show the user information.

1. Add a New student

This page appears in the registration office when they add a new student. Students have to Registration in the device. And then, their record will be added by the employer to make sure the student has his record with his information; not anyone else's. The employer submits the information to the system and the system will give a message that this student information has been added to the system.

1. User Report

This page will appear on a separate page in the system. It is a web page that gives the user a current report during the semester. It gives the user how many times to issue the book.

3.1.2 Hardware Interfaces

The hardware environment in this system will use the Pocket Library Application. This application will play a role in the system. This application must be available on every mobile in the college. This part of the interface has also other components, such as user information, and other related information. All of these data are stored in the database and end with the device screen.

3.1.3 Software Interfaces

1. Android device (phone)
2. Server
3. The database uses MySQL

3.1.4 Communications Interfaces

In this system, the connectivity of the database and mobile device is done by using the custom API. The retrieve the data of the student and the attendance is in encrypted form.

3.2 Functional Requirements

- Adding a New user:

Function: Sign up a new user to the system. Priority: Top (Required for the first release)

Requirements: To add a new user to the system, all of them should have registered in the admission office before they can register in their application.

- Use the system to Issue the book:

Function: Issue the book

Priority: Top (Required for every user)

Requirements: When students have a library, they must scan the book barcode in the input device. If the scan matches, the user can issue the book, and they will be checked done the Canvas page. If the scan does not match, the user has not issued the book.

- Use the system to Book Request & Search:

Function: The user will search the book and book request.

Priority: Top (Required for the first release)

Requirements: When the students have a library, the student has checked the book and his not to find a book so, they required a book, but still not their book, and they request the book from librarian/admin, And user have any book detail than his search the book.

- DUse the system to Status view:

Function: The user will check the booking status.

Priority: Top

Requirements: When the user to check the availability of the book and then issue the book and check status to book is available or not.

- Students Report:

Function: The user will look at their reports for the current status.

Priority: Top (Required for the first release)

Requirements: When the students have enrolled in the library, they are now able to check on their library login. In the system, they will be shown which book issue and return, which book is available.

3.3 Behaviour Requirements

3.3.1 Use Case View

4. Other Non-functional Requirements

4.1 Performance Requirements

1. If any changes are occurring in the book then it must update before issuing the book.
2. The record of the barcode is reflected on the database after the given timestamp.

4.2 Safety and Security Requirements

Due to hardware failure, the device can be replaced otherwise at the admin panel manual book issue is taken.

All the data of users can be stored in the database in encrypted form so unauthorized persons cannot be using our data.

4.3 Software Quality Attributes

Providing a better user interface and reduce user-level complexity to use our application. All the information users can make secure.