Resource Pool Android Application for Students

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Abstract - Android is a public, free, open source, Linux-based operating system. Maximum number of Users can be detained by it when compared to all another platform. The objective of this paper is to display the details of the resources like books, placement materials, notes and question bank and other materials. Here, resource holder can register their details. Students can search for required resources, and inter-department materials can also be collected quickly. Resource pool android application helps the patrons to view available resources without computers but through their Android devices which perform multitasking and allows the application to run concurrently. This application retrieves the information about the resources from resource database, for example, checking whether the books and other materials are available or not.

Keywords – Application Framework, Android, Registration, Library, Runtime.

I. INTRODUCTION

The objective of this paper is to display the details of the resources like books, placement materials, notes and Question bank. Here, resource holder can register their details. Students can search for required resources and inter-department materials can also be collected easily. In 2005, Google acquired a small startup company called Android, which was developing an operating system for mobile devices based on Linux [2]. Google set up the Open Handset Alliance in 2007. It is a group of 82 technology and mobile communication companies that are collaborating to develop the Android operating system as open source software for mobile devices. It facilitated any application developer to write Android applications. Android soon become feature-rich due to its open source nature [3]. Google could embed its search engine into Android; the way Internet Explorer is embedded into Windows. Starting from 0% market share, in 2008, when the first mobile phone incorporating Android was announced, it has become the dominant player and has shown a remarkable market growth in market share and user acceptance. Database Technology has an essential feature that provides an internal Representation (model) of the external world of interest The particular date/time/flight/aircraft in airline reservation or of item code/item description/quantity on hand/reorder level/reorder quantity in a stock control system are the examples of database technology. Since mobile manufacturers use different user interface and interaction styles for their mobile devices depending on the customer segment targeted, Android provided the ability to seamlessly use either a phone-based keyboard or touch screen [2]. Android provides a built-in full web browser capable of rendering full web pages. This paper describes how the user can find out details about the available resources with the resource holder and also they can view resource holder information. Resource pool android application for students saves Users valuable time by making complete procedure online. It allows the application developer to write code in Java programming language. It facilitates the development of applications with the help of a set of core Java libraries developed using Java. The Android code is structured into four different layers as shown in figure 1. Its components are;
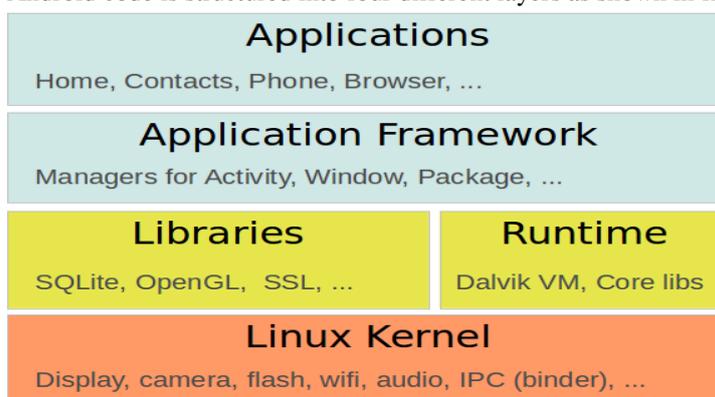

Fig. 1 Architecture of Android Coding

1) Applications: It includes default applications like Browser, Camera, Gallery, Music, Contacts and much more. This design is intentional and is intended to help aggressively manage resources to ensure responsiveness
2) Application framework: It provides set of services that an application programmer can make use of. The services include managers and content providers.
3) Libraries and Runtime: Graphic rendering, data storage and web browsing, are the common library functions performed here. Dalvik translates Java application program into machine code of the library.

4) Linux kernel: It is the Communication layer for the underlying hardware. Based on Linux kernel code, Android implements its own device drivers, memory management, process management and networking functionalities. This layer is one that is commonly used by cell phone users.

II. II. RELATED WORK

Ashutosh proposed a concept called Online Library Management System. It developed "Library Management System" in Java language. It mainly works on the basic operations in a library like adding and deleting new books, updating books, searching a book, adding and removing the user. RFID Based Library Management System [1] Using MATLAB. The work is contributed and based on the emerging technology called Radio Frequency Identification. It will be placed along with FPGA converter in the library to authenticate students and staffs. This system contains high-frequency DLP RFID1 Read/Writer having the range of frequency is 13.56 MHz. GSM technology is used to send a message to the students regarding due date of the book issued. The software is written in MATLAB and MySQL to improve system performance. Libramatic is a Library Management System based on cloud technology. On July 2012, it was launched officially in Dublin. It scans an ISBN code which allows the librarian to catalog the available books through Smartphone, camera or USB bar code reader or Personal Computer. The use of online library management systems has been increased by the drastically rising of "Cloud" technology. By scanning a book's ISBN, many modern cloud-based solutions is now allow automated cataloging. Although it is currently in use by systems such as Library World this technology was pioneered by libramatic.

Invenio is open source software. In 2002, it was developed by CERN. It has an inbuilt tool used to manage digital assets in an institutional repository. It is a Web-based application. It was written in Python programming Language. This package was recently chosen to be the digital library software in western Africa region which includes eight countries. NewGenlib is open source software. In March 2015, it was developed by Verus Solution. It is an Integrated Library Management System. It can be run on Linux and Windows operating system. It was written in Java programming language. Koha is open source software which was developed by koha community its initial release was in January 2000.It is an integrated library system which runs on Linux kernel and was written in Pearl programming Language. PMB services developed PMB which is open source (Integrated Library system) software. The first release of PMB was made on October 2003.GNU licensed PMB software. It was written in PHP programming language. It can be run on following operating systems such as Linux, Windows, and Mac. It also provides many features and it is user-friendly for the librarian.

III. PROPOSED WORK

Cell phones are small in size and therefore can easily be carried everywhere like a wallet. Considering their portability and the powerful features set that they provide they have now come to play an important role in today's society [2]. An application developer can host Resource Pool Android Application in the Android market place, from where it can be downloaded easily the end users. Android has come up with different versions in quick successions, such as Gingerbread, Honeycomb, Jellybean, KitKat and Lollipop. This paper mainly focuses the proverb "Time and Tide and Wait for None" which means instead of students ask resources with everyone they can view the available resources and can contact the corresponding Resource holder. Thus it helps effortlessly to the user. Figure 2 shows the architecture of the proposed system.

IV. SQLITE DATABASE

SQLite is a Relational Database. It is the most popular and widely used database in mobility platform [6]. It is used to store all the data and they are usually contained in the C Programming Library. All the information's are usually stored at the client end for the fast access. Once database created, it can usually be accessed by name to any class in the application. Developers can be offered to easily access the database and can be utilized the built-in features which are fully available to them.

V. ECLIPSE IDE

Eclipse is a multi-language Integrated Development Environment (IDE). It has a set of seamlessly integrated tools such as code editor, Compiler, debugger, execution support and other tools are required to develop the application. It can be used the IDE, which also automatically installs the Android SDK as a plug-in [4]. After installing this plug-in, one can start develop Android applications.

VI. ANDROID SDK TOOLS

Android Software Development Kit (SDK) is a mobile application development framework using which developers can create applications for the Android platform. The Android SDK provides the tools and libraries necessary to develop an application that can run on Android-based devices [5]. An important advantage of Android SDK is the low processor and RAM requirements. Besides, Android SDK can be installed on almost all popular operating systems such as Windows, MAC OS and LINUX. Using the SDK, one can either run the application on the actual Android device or a software emulator on the host machine.
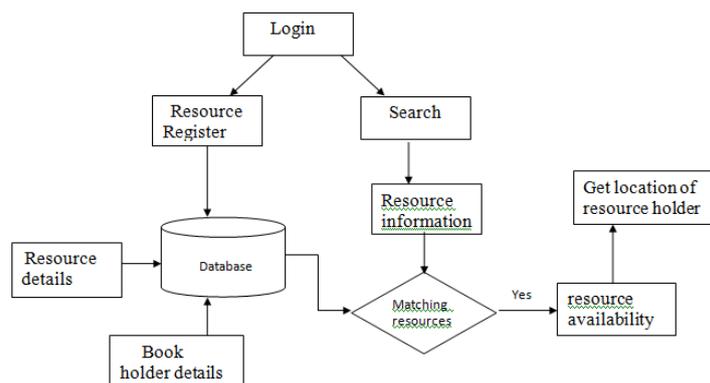
Fig. 2 Architecture of the Proposed System

VII. WORKING MODULES

Initially, Resource Pool Android Application will be loaded in the Google Play Store. Then, 'n' number of users can download that via play store. As soon the user logins there appears the list of available resources and the search option is also enabled to view the desired Resources. The implementation of this approach contains three modules namely:

A. Resource Holder Registration

In this module, it holds detail information about resources and resource holder .The information is resource holder name, resources such as books, notes, question banks, placement materials and so on., email-id, the Mobile number is not mandatory. After registration is done successfully click save button else cancel button. Figure 3 shows such Registration page. Its components are;

1) Resource holder name: It is in text field format. It accepts only alphabets of both uppercase (A-Z) and lowercase (a-z). If any unrelated text such as numerical and special character it will not proceed to next field.
2) Resources: It is checkbox type. Resource holders can select their resources.
3) Location: It is textbox format. It accepts text, numerical, special characters.
4) Email-id: It is text field format. It accepts text, numerical, special characters.
5) Mobile Number: It is number format. It is not mandatory to go to next page.
6) Save: It is a button. After registration is successfully processed click save button once.
7) Cancel: To cancel the registration this button is used.

B. Search Engine

In this module, it will display all available resources. Here search icon is used to search the necessary resources. This application navigates the search of a user for his/ her desired book by categorizing it in two major divisions, namely (1) Search by book title and (2) Search by author. Thus making the search a time efficient and convenient one and also supplying the user with the perfect match for his search. Figure 4 shows such search page.

C. Get Location

Once the available resource is viewed by the user, he/she is moving to corresponding resource holder page. The approximate postal address of any location on the world map can be determined by the user quickly by clicking get location button which leads to Google map. Drag the red marker anywhere on the Google map and the address details of the resource holder location will be displayed in the pop-up window. Figure 5 shows such get location page.

Fig. 3 Registration Page   Fig. 4 Search Page   Fig. 5 Get Location Page
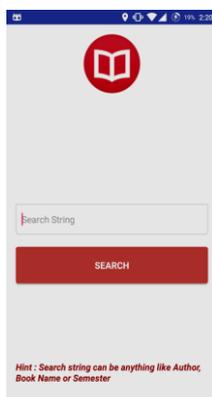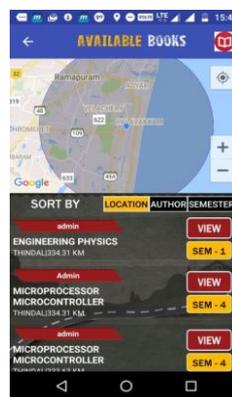
The advantages of the proposed method include, (1) The main aim of the application is to make people to easily check the availability of the resources in an efficient manner and (2) This application in Android allows the users to access the

system through Android Smartphone instead of computers. The major pitfall of this system is that only the Android users can use this application.

VIII.   CONCLUSION AND FUTURE WORK

In this paper, we have presented a Resource Pool Application, developed for Android using SQLite Database. The aim of the application is to make people to easily access their resources to check the availability of the books and other materials. This application saves users estimable time by making complete procedure online. The problem of data storage is solved by storing them in popular open source SQLite database. To improve the efficiency of data processing, cloud messaging can be used.

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