

College Enterprise Resource Planning- Android Application

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Abstract - Modern management techniques are extensively using mobile technologies with the support of advanced mobile development. The proposed system will improve interactivity, accessibility, and convenience in the college management process. Our objective of this project is to add mobility and flexibility to the process of managing student information in an institute. It is a simple yet powerful integrated platform that connects the various entities. It is a handy application that can be used by the students and the administrator to facilitate communication. The application is portable as it is used on a mobile device and improves connectivity between the students and the institution, thus helping the institution to provide a more transparent system altogether. This system can be preferred for monitoring attendance for the colleges. Students as well as staff login may also access or can search any of the information concerning college. Attendance of the students along with their marks will be updated by staff. This system is being developed for an institute to maintain and ease easy access information. For this the users must be enumerated with the system after which they can access as well as modify data as per the authorizations given to them.

Key Words: Enterprise Resource Planning, Mobile technology, Mobility, Android, Attendance.

1. INTRODUCTION

The future of education is rapidly changing and will continue to change in the coming years, but with an Education ERP Software, we can ensure that every change is implemented with the same consistency and flow, and it will make all processes simple and smooth, allowing to access everything with just one click. The aim of this project is to develop an Android mobile application for an ERP system that will perform the operations into a single system with a common database that administrator and other educational college staff members may use. ERP provides the information to all the levels of management within a college organization. This system can be used as an information management system for the college. For a given user, the administrator will create a loginID & password, using this user can access the application. The application will develop in android consist of backend business logics will be in Django REST API reside at middle layer. And these layers will interact with third layer of database, which will be Oracle database. To start working on this project environment required Android Studio as IDE

and Flutter as main framework, Oracle as database and AVD as development environment

2. LITERATURE SURVEY

2.1 Implementation of ERP system in Traditional way

Half of the tutorial establishments in developing countries following the normal technique of managing data system with stand alone pc machines and store knowledge in numerous division system because of lack of infrastructure. completely different modules like fees management, attending management, admission, payroll, grading etc are enforced in individual system or in network based mostly system in ad-hoc approach while not having overall objective of comprehension ERP. On these systems, the software implemented don't integrate processes and can't act to every other. In these kinds of system implementation no concept of service architecture being used [1]

2.2 ERP In Education Sector

The education system in developed countries in Asia has seen a massive growth of over the past decades. students also increased by [2]. ERP is an IT solution that integrates and automates attendance, admissions, financial aid, student files, most academic and administrative services. ERP can be used for administrative and academic purposes by universities and institutes [3]. Administrative functions include: accounting, payroll, human resources and billing. Academic functions include: registration, admission, recruitment, attendance, educational planning and all aspects of student enrollment can be managed [1]. Kvavik, Katz, Beecher, Caruso, King, Voludakis, and Williams (2002) observed that ERP solutions provide improved services for faculty, staff, and students; administrative, academic and student data are standardized; university data are globally accessible on the Internet; and newer systems involve lower cost and risk than older systems [1].

2.3 Research and Implementation of Web Services in Android Network Communication Framework Volley

The integration of Web Services with mobile devices in this article will aid in the creation of mobile apps. Google's planned Volley architecture provides the advantages of ease

of use and faster network requests, however it does not enable Web Services. Volley has been extended to enable Web Services, which not only makes developing Web Services applications easier, but also improves Web Service access speed. Based on study and research of the Volley, Ksoap2, and Java Web Services, support for Web Services was realized through the development of the HTTP Stack interface and the extension of JSON Object Request. The system transfers data in JSON format and supports SSL/TLS protocol requests, custom parameters, and setting or retrieving request headers.

3. PROPOSED SYSTEM

The system architecture consists of Android smartphones, web services, database servers, and users as components. Android smartphones or tablets should use a 4G or WiFi network for internet connection to improve performance. However, 3G also needs to meet user needs with the additional lag caused by the time lag. The user must log in to the application using an Android smartphone. The user type is approved by the database server and the appropriate users are granted access depending on their permissions. Web and Android applications access data from a common database server through the internet. The “College ERP System” is based on managing the records of a College and managing the records of all the students. The first activity is based on entering the students as soon as their admission is done. A unique register number is given to that particular for his identification. The system also maintains attendance details of a particular student. At the end of each month, the number of classes attended by each student is displayed. The system also manages in storing students marks separately for each semester. At the end of each semester, the results are displayed by calculating his/her semester marks and also including his/her internal marks. It also manages the awards gained by each student. Timetable is the most important part of the College especially to students, timetable will provide the schedule, important dates, events, annual academic calendar.

2. SYSTEM ARCHITECTURE

User: Student

By login into the application students will have an access to data respect to college. Data may include Student personal details, Academic details, admission details, Attendance, timetable, Notices. The authentication implementation include login with college student ID given by college. Students can receive the real time notification from staff regarding Data and abstraction level for student

1. View Student Profile
2. View student attendance data
3. View semester wise pass/ fail, percentile, grades

5. View timetable
6. View notices for student via notifications.

User: Staff

Staffs are the ones who have been given permission to enter the details of each student's grades and attendance. They may view each student's academic performance as well as their attendance, which they can then record in the database. Aside from a student's attendance and performance, the staff might review feedback received from students. This application is primarily concerned with reducing the amount of work that is assigned to staff.

Staff will install application on devices and login their account to access the following features.

1. View staff profile
2. Send notices via notification
3. Post the student attendance as per lectures / practical / sessions, etc.

User: Admin

Admin is the ERP Database Admin who is going to update all the data in the ERP system.

1. To update Database with existing ERP Web Portal
2. Add student and manage data
3. Add staff and manage data

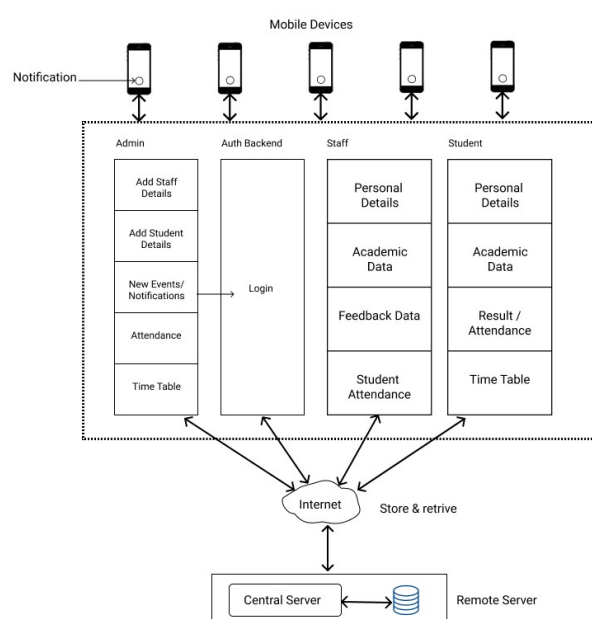


Fig -1: System architecture

3. ADVANTAGES

- Mobility and flexibility are added to the method of managing student information in college.
- The application will prominently make things easier and speed up the management process.
- Easy to use.
- The system is easy to organize, safe with convenient operations.
- Access to sanctioned student and staff only.

6. DISADVANTAGES

- Designing the framework architecture of the system can be perplexing part to make framework dynamic.
- The service servers can have their own technology to make it really secured.
- The good internet connectivity required.

7. CONCLUSIONS AND FUTURE SCOPE

As a result, the focus of our project is on the development of a mobile application for a college ERP management system that supports various services. It decreases the amount of manpower necessary and rapidly updates the data. It allows students to monitor their grades, submissions, attendance, and notify their professors if any modifications are necessary. The system may be improved further to make it more powerful and smart. There are still many areas of the system that may be improved and enhanced in the future to meet the changing needs of students

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