

## A Survey on Mobile based ERP system (M-ERP)

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**Abstract** - Since ages, marking attendance and other similar college functions has been most important activities of any school, college to keep records. This record helps the organization in generating their month-end progress report etc such system may be manual or automated. In proposed system, an attempt has been made to develop and deploy M-ERP application on Android mobile phones. The advancement in the mobile devices, wireless and web technologies gives rise to new application that makes ERP system very easy and convenient. M-ERP means performing college register functions by using portable mobile device. M-ERP application will integrate all the business functions like marking attendance, marks, Student information etc in a single centralized database. M-ERP promising the possibility of convenient, easy and safe way to handle business functions of college. We have described how the android mobile phones are efficient and can be used for ERP system.

**Key words** - M-ERP application, portable, business functions, single system and database.

### I. INTRODUCTION

Our aim is to create an android mobile application for ERP system that will integrate various college register activities in a single system with a common database that can be used by teachers, students, parents and other staff members of educational institute. Marking attendance and other similar college functions has been most important activities of any school, college to keep records. This record helps the organization in generating their month-end progress report etc such system may be manual or automated.

In M-ERP collaboration of existing college ERP system is done with mobile android application using centralized database. In other hand the rapid development in operating system of the mobile phones gives rise to their development on large scale. In proposed system, an attempt has been made to develop and deploy M-ERP application on Android mobile phones. This paper will be describing the basic idea of the project M-ERP system on android and proposed system with its working.

### II. EASE OF USE

#### 1. Evolution of ERP Implementations in Higher Education Institutions

##### A. In Traditional way

Half of the educational institutions in developing countries following the traditional method of managing information system with stand alone computer machines and store data in different departmental system due to lack of infrastructure[1]. Different modules like attendance management, grading etc are implemented in individual system or in network based system in ad-hoc way without having overall objective of comprehension ERP. On these

systems, the software implemented does not integrate processes and cannot interact to each other. In this kind of system implementation, no concept of service architecture being used [1].

##### B. ERP On-campus Implementation

During the time of 1990's to 2000 many organizations, developed in-house infrastructure for ERP implementation and without any outside dependence. They tried hard to control data with in-house huge infrastructure, but not able to solve the problem of integration of processes. [1]

##### C. Implementation of ERP with INTERNET Host Provider

During 2000, with advancement in technology and increase in the web based technologies, made easy way to implement ERP using web based cloud system. These kinds of implementations work on visualization system, it uses server side script or tool, database storage server and networking component is handled by the host who has been hired for providing services that helps to lower the cost of system. [2]

##### 2. ERP in Education Sector

Education system in developed countries of Asia has witnessed massive growth in the past few years. Not only the intake of colleges has increased significantly but the processes related to admission, examination, interaction with students/parents has also has grown [2]. ERP is an IT solution that integrates and automates attendance, admissions, financial aid, student records, most academic and admin services. ERP can be used for administrative and academic purposes by Institutes [3]. Admin functions

include: Verification and updating of records. Academic functions include: registration, admissions, recruitment, attendance, teaching planning and all aspects of records of the students can be managed. [4]

### 3. Why to Implement ERP Systems in Education Institutions

Table1: Reason for Implementing Erp system in Educational institutions[1]

Factor	Percent
Replacing Aging Legacy system	30%
Improve Service to customers	21%
Transforming Institution Operations	16%
Modernize Campus IT Environment	12%
Keep Institution Competitive	7%
Increase efficiency	5%
Better teaching learning process	5%
Accountability/Regularity compliance	4%
<b>Out of</b>	<b>100.00%</b>

Few of the vital reasons for implementing ERP Systems for education sector are to improve the services to users like students, parents. It is important to manage their data properly starting from attendance to result will improve quality and there will be security in data which can be only accessible to college authorities and parents if required. In competitive world to keep institute competitive, increase in efficiency of teaching syllabus reportage can be entered as per syllabus and other activities conducted, which will help the institute to get good rank from different authorities of government. Better teaching and learning process as some learning management software are available for uploading teaching material and slides for students.

## III. PROPOSED SYSTEM

### Introduction to Proposed System

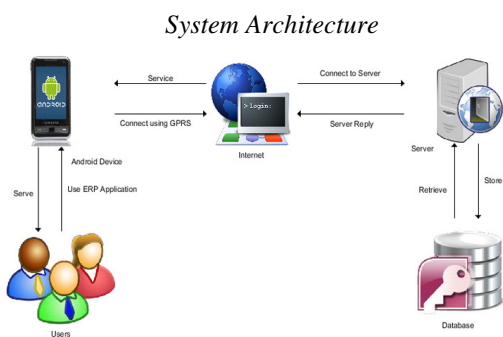


Fig. 1: System Architecture [1]

In the above architecture it is shown how user interacts with this application and described how the application interacts

with the services it requires to provide the functionality to the users. Users described in the architecture can be staff, students, parents and admin/HOD. User handles the application using android smart phone. It is required that the android device must be connected to internet using GPRS/EDGE or Wi-Fi. M-ERP uses internet to connect to server where the processing is done. At server site database server is placed. All the interaction of the system is shown in system architecture diagram [1].

The modules of the system are discussed below:

1. Attendance Module
2. Result and Unit Test Marks
3. Notes, Assignment and study material
4. Suggestion Box, Complaint Box
5. Notice/ Announcement

The starting interface will offer a login option and registration option.

#### A. User: New User

Students after their Admission process, is registered by staff/admin in database by UNIQUE-ID; then respective student, staff and parents have to download the M-ERP application. As a new user they have to provide all their original documents to admin for verification of their identity and after verification and successful scan of details from admin they will be given their UNIQUE-ID, which the user will require for first login process. Then for registration after entering the given UNIQUE-ID all the details of user registered will be fetched automatically and user just have to provide their user-id and password for using the application. This user-id will help user to SIGNIN in different android devices. A confirmation of successful login in application is sent to the email-id consisting of link for activation of the account on the M-ERP application. After the account activation the student will login in application with the user-id and password through Mobile devices. The UNIQUE-ID is unique ID that is going to be same throughout the academic years. Now the student can login into application using UNIQUE-ID or user-id as username and PASSWORD provided.

1. *Attendance Module:* In this option staff can mark the attendance of their lectures by selection class, subject and number of lectures. The list of students in that class will be displayed with Present marked (by default), staffs just has to uncheck the absent student from the list. On other hand students can login with their respective id and view their attendance also parents can login and see the attendance of their ward.
2. *Result and Unit Test Marks:* In this option the staffs has to select class and subject whose marks is to be entered. The list of student in that class would be display. Staffs

just have to enter the marks of student and submit it. The result would be calculated and final result will be displayed to the students and parents.

3. *Notes, Assignment and study material*: In this option staff has to select the class for which notes or study material is to be uploaded and has to attach the file. The student belonging to that class will download the notes, assignment or study material uploaded by the staff.
4. *Suggestion Box, Complaint Box*: In this option the student or their parents can post suggestions or complaints directly to HOD. Complaint can be regarding any campus problem or staff related problem.
5. *Notice/Announcement*: In this option, faculty/staff can select the class or an individual from class or can select their parents and send notice or other campus announcement. Students will get pop-up notification.

#### B. Admin Module:

There are two types of admin modules

Type1: HOD

Type2: Personnel

##### Type 1: HOD

1. Subject allocation
2. Check Dashboard
1. *Subject allocation*: Here the Head of Department allocate subject to respective teachers for current semester.
2. *Check Dashboard*: Here Head of Department can look for the complaints submitted by any student or parents.

##### Type 2: Personnel Department

Personnel Department officers use this module.

1. Verification
2. Update Student Detail
1. *Verification*: This is used by the admin after admission process in the institute.
2. *Update Student Detail*: If Student requests for any update in his personal detail then the Type2 have privileges to edit or update the student information.

## IV. METHODOLOGY

### A. The three tier architecture

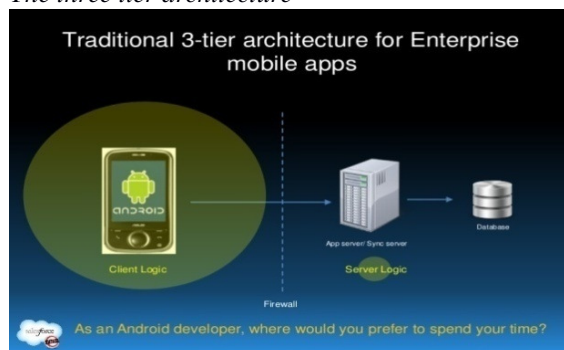


Fig. 2: Traditional 3-Tier Architecture

This application is based in three tier architecture also remembered as client-server architecture. In which client is the consumer of the services and server is a provider of services. The system developed contains Android Application in the front end i.e. client side or called as Mobile App Tier. Jason (JavaScript Object Notation) Parser work as the middle layer is primarily used to transmit data between server and server application. It basically converts the user requests into server understandable form. The server side comprises of Database. The Android API uses PHP to connect to database and existing ERP.

### B. Operating Environment

The main component of M-ERP project is the software application which will be limited to the android operating system (android 3.2 and above) where it depends on several functionalities built into android's Application Programming Interface (API). The application will however, frequently interact with existing ERP and its server. The M-ERP database will be stored on the server using MySQL and will be interfaced with wrapper written in Php. The Back-end consists of Server database. In the backend we are using Php. Php is server side scripting language used for storing and retrieving data from the database. Finally we will collaborate the existing ERP with M-ERP.

## V. CONCLUSION

M-ERP is a mobile application specially developed for students, parents and college management to monitor the overall curriculum performance of the students. This information can be accessed from anywhere, anytime in just few seconds. This application helps students to (LEAP) Learn, Evaluate, Analyze and Predict their academic performance at college, in just few clicks. It helps the college to reduce the communication gap between teachers and parents, and maintain smooth flow of information.

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