

# Mobile Web Based Android Application for College Management Sysytem

*A.J.Kadam<sup>1</sup>, Aradhana Singh<sup>2</sup>, Komal Jagtap<sup>3</sup>, Srujana Tankala<sup>4</sup>*

<sup>1</sup>Assistant Professor Department of Computer Engineering  
A.I.S.S.M.S. College of Engineering Pune, Maharashtra,India  
[ajkadam@aissmscoe.com](mailto:ajkadam@aissmscoe.com)

<sup>2</sup> Student(UG)Department of Computer Engineering  
A.I.S.S.M.S. College of Engineering Pune, Maharashtra,India  
[aradhanas1996@gmail.com](mailto:aradhanas1996@gmail.com)

<sup>3</sup> Student(UG) Department of Computer Engineering  
A.I.S.S.M.S. College of Engineering Pune, Maharashtra,India  
[komal.jagtap27@gmail.com](mailto:komal.jagtap27@gmail.com)

<sup>4</sup> Student(UG) Department of Computer Engineering  
A.I.S.S.M.S. College of Engineering Pune, Maharashtra,India  
[tankalasrujana@gmail.com](mailto:tankalasrujana@gmail.com)

**Abstract:** The main objective of this project is to add mobility and automation to the process of managing student information in an institute. In a real world scenario, such as college campus, the information is in the form of notice, hand-written manual, verbal message, is being spread among the students. Today it is of the essence to not only use the predictable forms of statement, but also new forms such as cell phone technology, for faster and easier communication among the students. The approach of communication is Android. The core idea of this project is to implement android based Mobile Campus application for advancement of institution and educational system .The application will be used by students, teachers and parents. In the previous system, all the information has to view in a hard file, or in website. At the same time while searching any information it is too difficult to access and takes a lot of time to search the particular website. Hence, in order to overcome this problem a smart phone based application using Android can be used to make this process easier ,secure and less error prone. More efficient information's will be achieved through this system. When sensitive data is stored on the device, apps can ensure that they are stored securely using encryption. Apps also exchange sensitive information with remote servers. The Android platform provides a number of algorithms for encrypting sensitive information. Some of these algorithms provide stronger cryptographic guarantees in protecting data than others. Cryptographic algorithms are harder to break when there is more unpredictability in the random numbers generated for use in encryption. A way of introducing unpredictability in Android is to use the Secure Random class. The need for encryption is twofold. Firstly, encryption makes it difficult to read and use any sensitive information that an app stores on a device. Secondly, encryption adds an additional layer of security to sensitive information that is exchanged between apps and remote server .

Keywords: Android , mobility, cryptography, Secure Random, encryption.

## 1. Introduction

With the advance in time and technology there is a need for faster dissemination of information .The increasing advantages of automated system now are at highest position thus many manual processes are automated. Since the automated system is demanded now-a-days, educational infrastructures like colleges needed their manual system to function on mobile computing systems. Changes in Information Technology (IT) allow institutes to utilize databases and applications such as Student Information System thus, making the accessing of records centralized. One of the changes that came about is web based

applications. These applications are an improvisation to the traditional- transaction processing systems.

## 2. PURPOSE

The main objective of this project is to add mobility and automation to the process of managing student information in an institute .The system bridges this gap between the end-users and the contrivance planning managers by providing centralized control over the entire system. Different departments utilize the system for sequencing different processes that are isolated apart.

### 3. Scope

The system being designed is economically with respect to the students and teachers point of view. The goal is to extract useful information from an unstructured data using the concept of information retrieval, filtering and secure random algorithms. To develop an enhanced student information management system that can help solve drawbacks of existing ERP system. Our basic approach attempts to develop a smart phone based application using Android which can be used to make this process easier, secure and less error prone. More efficient information will be achieved through this system. To provide access to information related to college, departments, uploaded assignments, notes, news and events, exams, discussion forum and daily time table on the go.

### 4. Literature Survey

#### 4.1 The development and design of the student management system based on the network environment

**Authors: Zhi-gang YUE, You-wei JIN**

The paper discusses the method of the management information in higher education. On the basis of a comprehensive investigation and analysis on the student management in higher education, we establish the models of the college students' management information by adopting the advanced information technology, and construct the student management information platform. Moreover, we analyze the characteristics of the information management in higher education, and elaborate the methods to solve the difficulties confronting in the students management of the higher education. Finally, the key method and technology to carry out the information management platform are presented.

#### 4.2 Android-based Attendance Management System

**Authors : Siti Aisah Mohd Noor, Norliza Zaini, Mohd Fuad Abdul Latip, Nabilah Hamzah**

In this paper a method of taking attendance by employing an application running on the Android platform is proposed in this paper. This application, once installed can be used to download the students list from a designated web server. Based on the downloaded list of students, the device will then act like a scanner to scan each of the student cards one by one to confirm and verify the students presence. The devices camera will be used as a sensor that will read the barcode printed on the students cards. The updated attendance list is then uploaded to an online database and can also be saved as a file to be transferred to a PC later on. This system will help to eliminate the current problems, while also promoting a paperless environment at the same time. Since this application can be deployed on lecturers own existing Android devices, no additional hardware cost is required.

#### 4.3 The Designment of Student Information Management System Based on B/S Architecture

**Authors : JinMei-shan, QiuChang-li, LiJing**

This paper uses the B/S structure to design the student

information management system, and explains the system design principle, system plan and structure, the function module of information system according to current university student information management needs. It provides an interactive students management platform for the information of a large number of students and the management of students.

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

**Authors : Yang Shulin, Hu Jieping.**

This paper includes combination of Web Services and mobile devices will promote the development of mobile applications. Volley framework Google 2013 proposed has the advantages of convenient use and network request faster, but it does not support Web Services. Extension of Volley, to support the Web Services, which can facilitate the Web Services application development, but also can improve the access performance of Web Services. On the basis of analysis and research of the Volley, Ksoap2 and Java Web Services, through the implementation of the Http Stack interface and the expansion of JSON Object Request to realize support for Web Services. The scheme uses JSON format to transfer data, support SSL/TLS protocol requests, custom parameter, sets or gets the request header. This scheme is good compatibility, easy to use, suitable for application on Android platform.

### 5. System Architecture

**The overall system design consists of following modules:**

**(a) User Module:** In this module we are authenticating the users by providing user name and password. If user name and password is valid then they will be taken to their static screens. When they get matched with each other, system checks their status and transfer the control to respective user-interface.

**(b) Database Module :** The system uses MySQL as its database and Apache Tomcat Server because of their simplicity and flexibility. This module store every single information about students, faculty and model their data on specified operations. These operation can be storing student attendance, result data or can be authentication credentials.

**(c) Staff Module :** This module is designed for staff, which use mobile phone to take attendance, upload result and upload college notifications as well as discussion forum. The entered admin details are encrypted and sent to server for verification. Only after successful authentication the operations are performed. If username and password cannot match, he/she can enter in to next static screen.

**(d) Notification Module:** This module allows the department HOD to update students about any college related information through notifications. The students can view notifications provided by the interface provided by application. HOD can

send message to only available options like all student, all faculty, specific faculty and to all.

**(e) Discussion Forum Module:** This module is a feature where students and teachers can discuss the queries from the students. This discussion is done with the mobile device via this feature and upon any interaction in a particular discussion thread; all the users involved in that discussion gets a notification on their device .In this discussion forum, the respective subject teachers can upload notes, respond to student queries. The student can put forth their queries and at the same time upload any notes.

**(f) News and Event Service:** The news service is for all students and staff. As soon as news about the university/college is released on the university/college website, a notification is sent to all the students and staff .

**(g) Assignment and Notes Module :** This service is for both the staff and students ,however both have different usage of the feature. Students - will be able to view the following information which is critical about the Assignment and Notes; the number of assignments given ,Upon the analysis using this data, the system will inform the students if they have got the new assignments and notes uploaded by the faculties. Staff - will be able to upload the notes helpful for students and the new assignments using the mobile device.

**(h) Exam Remainder Module :** This feature is available for the students. They can set reminders for their exams accordingly.

## 6.1 Advantages

- Mobility and automation is added to the process of managing student information in an institute
- The application will greatly simplify and speed up the result preparation and management process.
- Multiple algorithms working together to produce best results.
- The system is easy to deploy , safe with convenient operations.
- Access to authorized personnel only.

## 6.2 Disadvantages

- Designing the framework architecture for the system can be challenging part to make framework dynamic
- The service servers can have their own technology to make it really secured

## 6.3 Application

- Generates automated reports for attendance..
- Notifications, events and events prove to be very successful.
- Staff can arrange discussion forum which will help students.
- The voids in education system can be found

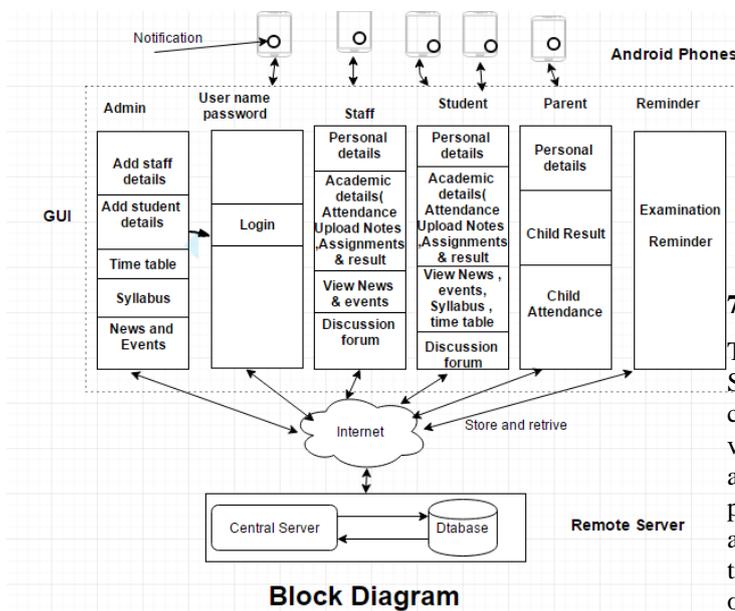


Fig 1: System block diagram

## 7. Conclusion

The system offers reliability, time savings and easy control. Students and their parents will also view results, attendance and curriculum details using this application. Also students can view details, notifications anywhere and anytime. The application will greatly simplify and speed up the result preparation and management process. It provides high security and a system that reduces the work and resources required in traditional process. The proposed system provides the new way of computing and d

isplaying an operations with responsive and attractive user-interface. Thus, on the basis of literature survey and by analyzing the existing system, we have come to a conclusion that the propose system will not only aid the automation to the college ,but will also help to digitize the system and in turn help to deploy resources efficiently.

## 8. References

## 6. System Evaluation

[1] Zhi-gang YUE ,You-wei JIN," The development and design of the student management system based on the network environment", International Conference on Multimedia Communications,978-0-7695-4136-5/10 2010 IEEE.

[2] Siti Aisah Mohd Noor, Norliza Zaini, Mohd Fuad Abdul Latip, Nabilah Hamzah, " Android-based Attendance Management System" , IEEE Conference on Systems, Process and Control (ICSPC 2015), 18 - 20 December 2015, Bandar Sunway, Malaysia.

[3] JinMei-shan,QiuChang-li,LiJing, "The Designment of Student Information Management System Based on B/S Architecture", IEEE Computer Society ,978-1-4799-3134-7/14/ 2014 IEEE.

[4] Yang Shulin,Hu Jieping, " Research and Implementation of Web Services in Android Network Communication Framework Volley" , IEEE Computer Society ,978-1-4799-3134-7/14/ 2014 IEEE

[5] Suriyani Ariffin,Ramlan Mahmod,Ratini Rahmat, Nuzul Annisa Idris,"SMS Encryption using 3D-AES Block Cipher on Android Message Application ", International Conference on Advanced Computer Science Applications and Technologies 978-1-4799-2758-6/13 2013 IEEE.

[6] Ramesh Shrestha,Yao Aihong,"Design of Secure Location and Message Sharing System for Android Platform " , International Conference on Advanced Computer Science Applications and Technologies 978-1-4673-0089-6/12/ 2012 IEEE.

[7] Balazs Beny'o, Balint Sodor, Tibor Doktor and Gergely Fordos, "Student attendance monitoring at the university using NFC" ,International Conference on Advanced Computer Science Applications and Technologies 978-1-4577-05809/12/@2012 IEEE

[8] Fei Shao, Zinan Chang, Yi Zhang, " AES Encryption Algorithm Based on the High Performance Computing of GPU" ,Second International Conference on Communication Software and Networks,978-0-7695-39614/10 2010 IEEE.

[9] Hsuan-Che Yang,Wen-Ying Wang "Facilitating Academic Service-Learning with Android-based Applications and Ubiquitous Computing Environment ",Published in 978-0-7695-4493-9/11 2011 IEEE.

[10] Cia Zhongxi,"Campus Employment Information Network Development based on Android Platform " International Conference on Intelligent Transportation, Big Data Smart City 2016 IEEE .

## 9. Acknowledgement

We would like to extend my sincere gratitude and thanks to our guide **Prof. A . J .Kadam**, for his invaluable guidance and for giving us useful inputs and encouragement time and again, which inspired us to work harder.

## Author Profile



**Aradhana Singh** is pursuing Bachelor's degree in Computer Engineering from Savitribai Phule Pune University from A.I.S.S.M.S College of Engineering, Pune, Maharashtra, India.



**Srujana Tankala** is pursuing Bachelor's degree in Computer Engineering from Savitribai Phule Pune University from A.I.S.S.M.S College of Engineering, Pune, Maharashtra, India.



**Komal Jagtap** is pursuing Bachelor's degree in Computer Engineering from Savitribai Phule Pune University from A.I.S.S.M.S College of Engineering, Pune, Maharashtra, India.



**Prof A.J.Kadam** an Assistant Professor, Department of Computer Engineering, Savitribai Phule Pune University in A.I.S.S.M.S College of Engineering, Pune, Maharashtra, India.