An Android Based Integrated Smart Campus System

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Abstract - In recent days of modern technology and applications everything goes smart and people look for handy solutions. Mobile apps aid in offering all the information to potential users in an easy way. In this paper an integrated smart campus system that improves the educational environment and the overall management level of schools and other educational institutions is presented. The smart campus system has been constructed based on Android development platform using javascript which provides feasible solutions for maintenance of smart institutions. Moreover this system helps in checking attendance, providing E-leave letter, paying online fees, reviewing of students and teachers, sending urgent notifications, live bus tracking, maintaining profile details of staff and students, fee details, academic records and other features in one touch and swipe.

Keywords- Smart School, e-Campus, Android development

I. INTRODUCTION

Smart Campus is the product of the rapid development of the Android platform and mobile application technology. The ideas of designing E-campus are based on mobile application development techniques. They utilize advanced information technology for implementation of the system, based on the digital environment with the support from the integration and combination of application services. Realization of the campus information acquisition and sharing information leads to promote the intellectual process of teaching, scientific research and services. A more effective, intuitive, and comprehensive modern management technology is needed to improve the academic management level. The Smart Campus mobile application can meet the requirement of information management in schools and other educational institutions. The Android Mobile App is proposed and implemented to elevate the standard of schools, colleges and universities.

II. LITERATURE SURVEY

Authors: Zhang, M. D., & Zhu, S. Y.

In this paper, Digital Campus project, an important research that meets the need of information technology development in higher education in University developments is presented. Several issues existing in Digital Campus development in universities like lack of a unified planning and deployment, information standards are not uniform. These issues lead to Digital Campus could not adapt to the demands of current information management, and restrict the development of Universities. Aset of design and planning of Digital Campus, to be carried out in the project are proposed. This project would create a reliable platform for creation of information resources, flows and sharing in universities and it could provide advanced tools and approaches for teaching, research and management of high education.

Authors: S.R. Bharamagoudar, Geeta R.B., S.G. Totad

This paper aids in automating the existing manual system. Apaperless work is proposed and it could be monitored and controlled distantly. It intends to reduce man power required and to provide accurate information at all times. Reduction in malpractice is an expected outcome. Information collected could be saved and accessed at any time. The data stored in the repository could help in intriguing decisions by the administration. Getting the needed information by the stakeholders, management and faculty without delay is possible.

Authors: Ankit Bansal, Ajit Rana, Akhil Bansod, Prafulla Baviskar

In this paper, the features of Android, the open source mobile operating system based on Linux that comes under free and open source software licenses with Java support is discussed at length and statistical facts regarding usage of Android devices are given. According to initial quarter Report of the year 2014, 900 million people are using Android based devices in the world and 76.6% of smart phone market istaken by android based smart phones. In a real world situation, like college campus where information in the form of notice, verbal message, hand-written notes, it is being spread among the students. Of late, it is of
importance not only to use the conventional forms of statement, but also innovative forms such as smart phone technology, for quicker and easier communication among the students. The android based Mobile Campus is proposed to supply students with information concerning library books availability, placement activities and other important notices pertaining to every department.


Authors: Fiawoo, S.Y., Sowah, R.A.

Managers of Corporates are constantly faced with the challenge of making decisions based on data generated at their offices. The decision-making process is very critical since the decisions made by management could make a corporation either outdo or hang about within reach of its opponents. This paper presents the design and development of an Android application that would recover summarised data from a central database and show that information on an android device so that managers in their decision-making process could be assisted. This application gets back data from a database on user request and shows the retrieved information on an android device. Users of this app would be able to analyse data faster hence make swift decisions.

III. EXISTING SYSTEM

Most of the existing systems consists of manual work. There is no automation and centralization of records. Staff can communicate with Heads of the departments by meeting face to face. Maintenance is hard and Time consuming. Tracking record is a tedious job. Developed Smart Campus is to provide an easy way not only to automate all functions of a college, but also to provide reports to higher authority of college with the finest of details about any aspect of college. Smart Campus provides one attractive environment where user can manipulate data and information about students and staff easily.

Disadvantages of Existing System:

- In existing System, there is no proper integration with parents and teachers.
- There have no online progress report and timetable viewer.
- No online fees payment facilities.
- Lack of special features like (QR code based gate-pass/E-work done/Income and expense analyst)

IV. PROPOSED SYSTEM

The mobile apps are becoming a vital part of our daily lives. The proposed system for Smart Campus is a fully automated one using Wireless Android. It is both a mobile as well as a web application. It uses smartphones of android platform and web services on computer systems. Smart Campus proposed here provides the complete structure of the school and maintenance for all departments. It connects parents, staff, students and management enabling access and sharing of the details in one place. Since this application connects every one belonging to the institution, checking attendance, providing leave, review of a student and teachers, urgent notification , live bus tracking, detailed profile details of staff and students, fee details, academic review and more features all comes in one touch and swipe.

Fig.1 Layout of Smart Campus system

V. SYSTEM DESIGN

Figure 1 depicts the design of the Smart Campus system. The following modules with their specific functionalities provide added advantage to the system.

A. Online attendance:

Taking attendance from teacher’s login: Attendance on daily basis with notification to parent feature is provided. Sending of SMS (Short Message service) based absent notification and the attendance report to parents through mobile app is feasible.

B. Live bus tracking:

Each and every vehicles of the Institution can be fitted with GPS (Global Positioning System). The current location of the vehicle can be monitored and tracked with GPS (Global Positioning System). Parents, Teachers and Management can track the bus with their respective mobile application.

C. Online progress report:

Progress reports and other remarks of individual student are uploaded to their parent’s mobile app.
Complaints and reviews of a student are sent to their parents individually through the mobile application.

**D. Time table viewer:**
Timetable is saved and viewed by both staff and parents at any time through their mobile app. Auto update feature is available if management/teacher made changes in it.

**E. Online fee Payment/Statement:**
Overall fee structure of a class and individual fee structure is available for everyone. Fee payment amount and due date is notified timely. Payment Gateway feature is also added for making online fees payment facility.

**VI. SAMPLE RESULTS**

**VII. CONCLUSION AND FUTURE ENHANCEMENT**

It has become a known fact that the world has gone mobile and there is no need to look back, if a mobile application is available for everything. The Smart Campus system based on Android Development proves to be an efficient mobile application for campus information management. This paper puts forward the Smart campus design functions and overall management plan.

However, research and development are still going on in this area to achieve maturity and reliability in the development of Smart Campus system and much more features such as Income/expense analysis, Staff’s salary record, E-Workbook for students, QR code based online GatePass etc., can be incorporated as future directive.

**REFERENCES**