Android Application for Department Alerts

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Abstract- *The SKNCOE-IT application helps all the students and staff members to stay connected. As per the attendance records are concerned, considering the average case, everyday 10% of the students remain absent due to their personal reason, so there exists a possibility that these students might miss the notifications released on that respective day, more specifically, some notifications that require urgent response. Hence, the aim of this application is to keep all the students connected with the department even if the students are absent. Also, many times, due to interesting notifications, the notice board is so crowded that it creates a disturbance in the department passage. This application will provide features that will help students to keep in regular touch with the department and not miss the single notification. Some of the notable features of this applications are Accessing attendance records, getting important news and updates, getting Karandak event updates, in-class or in-practical notifications and alerts, department's academic schedule, educational forums explaining the class assignments and tips and tricks or explanation provided by faculty or students etc and find the resources that will help students to achieve their academic goals.*

Keywords- Android, Alerts, Server, Attendance

I. INTRODUCTION

"SKNCOE-IT App" is an Internet-based mobile application. A mobile application is a computer program designed to run on Smartphone, tablets and other mobile devices. The proposed application runs on Smartphone running Android OS. Apps are made available to users through the application distribution platform which began appearing in 2008 and are typically operated by the owner of mobile operating system such as Google Play Store, Apple App store, Windows play store, Blackberry app world etc. As a developer, we selected Android OS for developing this application due to its wide and day by day increasing popularity since its birth in 2008. Considering its popularity, more and more services are developed and deployed to customers through android applications. Hence, while surveying which platform to select for developing this application, we selected android platform due to following reasons :

- Android is an Open source platform
- Supports multifunction
- Provides rich tool to make interactive applications
- Downloading the software required to develop an android application is absolutely free Along with this, we surveyed the popularity of operating system[1]. Market share of android which was mere 2.8 in 2009(initial stage), boosted 48% till August, 2011 which is almost half the share of total market. Our basic aim is to provide services to as many students as possible.

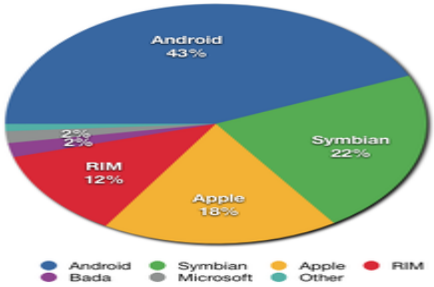

Figure 1. share of 2011 Smartphone sales according to Gartner

The SKNCOE-IT App will be made available to students through the Android Play Store, which users would be able to install in their Smartphone after downloading it.

Considering the usability of the applications, there are two types of users :

1. Students
2. Departmental staff :HOD and Professors

The HOD will be able to post notices to the appropriate audience in the department, like students from SE,TE or BE and to the staff. For posting and getting the notices, the user should be online. Staff would have the authorities to generate in-class alerts regarding academic subjects, accepting or rejecting student's leave requests, providing answers of sharing academic materials in educational forums etc. The important point of the SKNCOE-IT App is location independency, that means notices or alerts can be generated from anywhere by the posting authority, and the respective audience can view notices from anywhere, just with a mobile device and an internet connection. This removes

the problems of student's absentees or poor delivery of notices by traditional approach.

II. EXISTING SYSTEM

Currently our college has manual system of putting notices on notice board. Its outdated now. As nobody has a time to stand in rush in order to read the notices on notice board.

Limitations of Existing System :

1. Order of Data:

Notice can get out of order in traditional notice board system. If someone accidentally puts some data in the wrong place, it can lead to loss of data. Many times, old notices get covered by new notices on notice board due to limited space available on notice board. Automated notice management systems allow users to quickly check whether information already exists somewhere in the system or not, which helps avoid problems like redundant data.

2. Complexity:

Automated system is less complex than manual system of handling notices, which can make it easier for untrained people to access and manipulate data. Anyone having the basic knowledge of mobile handling can work on the automated system.

3. Inconsistency of data:

There will be an unavailability for future use, since notice might get misplaced or removed after expiry of notice period during manual notices management. So notice won't be preserved properly for future use. Here, automated notice management system is beneficial as it can store all the past records using digital database.

4. Damage:

Manual notices stack are vulnerable to damage, destruction and theft in ways that digital databases are not. A company may back up its digital data both on site and at offsite locations, ensuring its security if the office building suffered a fire or similar disaster. A manual database, however, may only exist in one place without any copies. As a result, a manual database would be very vulnerable to a fire or other natural disaster. In addition, while access time in a manual database system, information must be found by hand rather than electronically. While a digital database will typically allow users to search the entire database for specific information in seconds, someone looking for information in a manual system may have to spend hours searching for a particular piece of data.

5. Editing and Communication:

Manual notices do not allow users to easily edit data or information. Manual notices often cannot be edited directly, forcing users to make new copies. To circulate notice on paper, the notice publishing authority must require peons and other staff. SKNCOE-IT app allow the authority to edit information fields directly, and because data is stored digitally, it is already in a form that can be easily transmitted.

III. SYSTEM ARCHITECTURE

A. The architecture diagram of this application is divided into four levels: level 0, level 1, level 2 and level 3.
B. At level 0 lies the basic step for using the application, that is the registration process which is performed by students and staff members of department.
C. At level 1, the student and staff do log in to this application to use it.
D. Level 2 comprises of various functionalities which are given to the users of this application. There are many functions which operates parallel to each other in student side and staff side.
E. Level 3 consists of the notification stage, where the users of this application are notified for incoming updates.

System database is common to all the levels, as all the operations which are being performed at these four levels makes use of system database.

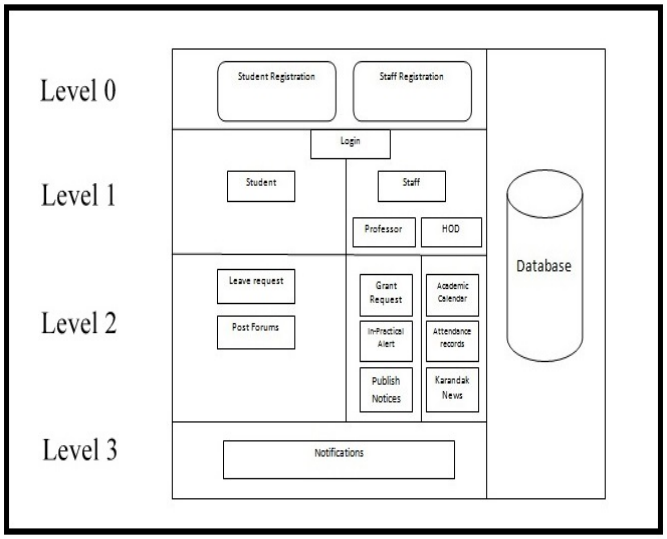

Figure 2. System Architecture

IV. TEXT LOCAL SMS

The whole project is divided into three smaller modules, these are : student module, professor module and HOD module. The main aim of this project is to build a proper communication between them so that the flow of information will be simplified. For this purpose, various features and services are provided. To implement a notification service, an SMS service is used, which plays an important role to covey alert to the users, even when they are not connected to the network. Hence, this enhances the application to produce alerts in offline mode.

Several mobile telephone network operators have true fixed-wire SMS services. These are based on extensions to the European Telecommunications Standards Institute (ETSI) Global System for Mobile Communications (GSM) SMS standards and allow messaging between any mix of fixed and mobile equipment. These use frequency-shift keying to transfer the message between the terminal and the SMSC. Terminals are usually based on Digital Enhanced Cordless Telecommunications (DECT), but wired handsets and wired text-only (no voice) devices exist. Messages are received by the terminal recognizing that the Caller ID is that of the SMSC and going off-hook silently to receive the message.

```
<MESSAGE>
<AUTHKEY>Authentication Key </AUTHKEY>
<SENDER>SenderID</SENDER>
<ROUTE>Template</ROUTE>
<CAMPAIGN>XML API</CAMPAIGN>
<SMS TEXT="message1" >
<ADDRESS TO="number1"></ADDRESS>
<ADDRESS TO="number2"></ADDRESS>
</SMS>
<SMS TEXT="hi test message" >
<ADDRESS TO="number3"></ADDRESS>
</SMS>
</MESSAGE>
```

A direct-to-mobile gateway is a device which has built-in wireless GSM connectivity. It allows SMS text messages to be sent and/or received by email, from Web pages or from other software applications by acquiring a unique identifier from the mobile phone's Subscriber Identity Module, or "SIM card". Direct-to-mobile gateways are different from SMS aggregators, because they are installed on an organization's own network and connect to a local mobile network.

The connection to the mobile network is made by acquiring a SIM card number from the mobile operator and installing it in the gateway. Typically, direct-to-mobile gateway appliances are used for hundreds to thousands of text messages per month. More modern appliances now offer the capability of send up to 100,000 messages each day. Several vendors that have historically provided GSM Gateway equipment for voice also have SMS capability. Some are more primitive than others. The more capable devices are designed with SIM management to regulate the number of SMS messages per SIM, ODBC to connect to a database, and HTTP interfaces to interact with third party applications.

An SMS gateway typically sits between the end user who needs to send/receive SMS and a mobile network's SMSC. Such gateways provide a choice of protocols, including HTTP, SMTP, SMPP and Web services. Providers of SMS gateway services include SMS aggregators and mobile operators. SMS gateways are also available as part of messaging services such as AOL, ICQ and others.

An SMS gateway connects with (i) mobile network SMSCs in order to send/receive messages and/or (ii) other SMS gateways in order to reach mobile subscribers on multiple mobile networks. It is therefore possible that an SMS gateway has a combination of mobile network SMSC connections and connections with other SMS gateways in order to provide its services. However, there is the increasing potential for delivery problems with SMS the greater the number of SMS gateways in the delivery chain.

V. CONCLUSION

By developing this project, we learnt a lot about application of various technologies like Android studio, JAVA, WAMP server etc. If we talk about the project, it has reduced a lot of manual work which used to happen earlier. It has made notifying each and every user very easy and that to with no restriction of time and place. Thus, the application helps to keep students and staff stay connected with the department.

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