BSIOTR Info: An Android Application for College Campus

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ABSTRACT: BSIOTRInfo provides a simple interface for maintenance of student information. It can be used by educational institutes or colleges to maintain the records of students easily. The creation and management of accurate, up-to-date information regarding a students' academic career is critically important in the university as well as colleges. BSIOTRInfo the android application software which would be a miniature of our college website. This multipurpose program is considering the user as either an BSIOTR or non-BSIOTR, student or parent, faculties or office staffs individually. Project gives a total solution to everyone. It gives more comfort and a better user interface. It acts as an overview about the campus to a non BSIOTR like the college history, departments, workshops, faculties, library etc. major events conducted. It acts as a college assistant for BSIOTR. Latest news and updates about college is got through notifications. Individual account can be created for students. Students can share ideas about mini projects, Group discussions, Application forms can be taken print. It is also useful for the parents to communicate college authorities, faculties etc. Students can interact with faculties directly. It gives detail information about Training and placement Cell. Information about current technology in market, different companies placement of campus. Students can give the practice test which includes MCQ question including Aptitude, Programming, Math, GATE, and General Knowledge related to departments.

KEYWORDS: Android Application, College Campus, Face Recognition, RFID Device, Attendance.

I.   INTRODUCTION

The era of mobile technology opens the windows to the android app. The websites are vanishing and the mobile phones are emerging. It's the time to change from conventional websites to apps, which has become the part of our daily routine. We are introducing "BSIOTRInfo.apk the android application software which would be a miniature of our college website. Our multipurpose program is considering the user as either an BSIOTR or non-BSIOTR, student or parent, faculties or office staffs individually. Project gives a total solution to everyone. It gives us more comfort and a better user interface. It acts as an overview about the campus to a non BSIOTR like the college history, departments, workshops, faculties, library etc. major events conducted. It acts as a college assistant for BSIOTR. Latest news and updates about
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Students can share ideas about mini projects, Group discussions, Application forms can be taken print. It is also useful for the parents to communicate college authorities, faculties etc. Students can interact with faculties directly. It gives detail information about Training and placement Cell. Information about current technology in market, diff. companies' placement of campus. Students can give the practice test which includes MCQ question including Aptitude, Programming, Math, GATE, and General Knowledge related to departments. The requirement of user is to,

1. Access/Search Information.
2. Login to the system through first page of application
3. View/change his/her details
4. Can get help through HELP option to view diff. features of the application
5. Students can give feedback on college/staff

An admin login should be present who can read as well as remove any uploads.

II.   LITERATURE REVIEW

In recent years the Android Technology with web services has brought many drastic changes in the mobile application development field. This application provides a generalized solution to monitor the various works that are carried out by a College for managing it. "Smart Connect" provides a simple interface for maintenance of student information. It can be used by educational institutes or colleges to maintain the records of students. The creation and management of accurate, up-to-date information regarding a students' academic career is critically important in the university as well as colleges. Smart Connect deals with all kind of student details, academic related reports, college details, course details, curriculum, batch details, placement details and other resource related details too. It will also have faculty details, batch execution details, students' details in all aspects, the various academic notifications to the staff and students updated by the college administration. It also facilitate us explore all the activities happening in the college. Different reports and queries can be generated based on vast options related to students, batch, course, faculty, exams, semesters, certification and even for the entire college.[1]

Jianye Liu and Jiankun Yu, introduced the Android platform and the features of Android applications, gave a detailed description of Android application framework from the prospective of developers. A simple music player is provided as instance to illustrate the basic working processes of Android application components. Author could provide guidance to understanding the operation mechanism of Android applications and to developing applications on Android platform.[2]

Web applications are popular due to the ubiquity of the browser as a client, sometimes called a thin client. The ability to update and maintain web applications without distributing and installing software on potentially thousands of client computers is a key reason for their popularity. Mihal Brumbulli and Blerina Topciu presents a complex management information system designed for Albanian high schools. The primary goal of this application is to offer a suitable interface to its users in order to simplify and reduce the time needed for information and procedure management relating to different school activities. This system is designed for three categories of users: director, teachers and secretary.[3]

Author Uduak A. Umoh, adopt a state-of-the-art technology to design an Object-Oriented Database Management System (OODBMS) for the management of information in Nigerian Universities. Author applied the object-oriented design tools to create a database model that is reliable, dependable and secure. Author focused on creating a unified modeling language (UML) structure by specifying the use case, classes, and activities in the client-server application. The design strategies of the web-based OODBMS are also discussed and a server-based application with state-of-the-art facilities expected. Author developed a working prototype of the system on a three-tier client server architecture based on the advantages discussed in the work MySQL DBMS, Apache web server, and PHP server pages are adopted as system development tools.[4]

Student Information Management System (SIMS) provides a simple interface for maintenance of student information. Student information system deals with all kind of student details, academic related reports, college details, course details, curriculum, batch details, placement details and other resource related details too. It tracks all the details of a student from the day one to the end of the course which can be used for all reporting purpose, tracking of attendance, progress in the course, completed semesters, years, coming semester year curriculum details, exam details, project or any other assignment details, final exam result and all these will be available through a secure, online interface embedded in the college's website. It will also have faculty details, batch execution details, students' details in all aspects, the various academic notifications to the staff and students updated by the college administration. It also

facilitate us explore all the activities happening in the college, Different reports and Queries can be generated based on vast options related to students, batch, course, faculty, exams, semesters, certification and even for the entire college.[5]

In today's world, a paper based approach is followed for marking attendance, where the students sign on the attendance sheets. This data is then manually entered into the system. Managing the attendance of the students during lectures is a difficult task and it becomes more difficult during the report generation phase. This is because the process of marking attendance and maintaining the data is not fully automated and manual computation produces errors and also wastes a lot of time. For this reason, the development of Attendance Monitoring System (AMS) using android platform is presented by A. A. Kumbhar and K. S. Wanjara.[6]

These days, instructors in universities and colleges take the attendance manually either by calling out individual's name or by passing around an attendance sheet for student's signature to confirm his/her presence. Using these methods is both cumbersome and time consuming. Therefore a method of taking attendance using instructor's mobile telephone has been presented in by author N. Satija which is paperless, quick, and accurate. An application software installed in the instructor's mobile telephone enables it to query students' mobile telephone via Bluetooth connection and, through transfer of students' mobile telephones' Media Access Control (MAC) addresses to the instructor's mobile telephone, presence of the student can be confirmed. Moreover, detailed record of a student's attendance can also be generated for printing and filing, if needed.
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III.   MODULES

1. Face recognition for taking attendance: Pathak et. al.proposes a face detection and recognition system for attendance automation in colleges/schools which required installation of two cameras, one for sensing and other one for capturing image of students, in every classroom. An image is clicked of the entire class and then using the positive and negative examples saved in the database, presence/absence of any student is marked. Since subjects may have large class strength, thus error rate using this system is proven to be high. Further, a large database is required per subject for efficiently managing this system.

2. Using RFID device for taking attendance: Olatunbosun et. al. [11] proposed RFID reader and tag based automated attendance system. This approach requires installation of RFID devices outside every classroom and also requires that the students should carry their unique RFID cards to mark their attendance by touching it to the device. This system has high installation cost because not only a RFID signal modular device needs to be installed but also a RFID reader (using microcontrollers). This methodology is also not known to having put to use in any institute as such obligations without redirecting the customer away from the website.

3. Use of NFC technology for taking attendance: Bhise et. al.proposes a wireless technology for communication which requires every teacher to have a mobile phone that should be NFC enabled and has NFC reader, and only then it can be used for taking attendance. Students need to carry their NFC tags and bring it nearer to the mobile phone (which has to be NFC enabled) and the NFC reader will read and mark the presence of students carrying their tags after a successful server validation check is performed. In this system, anyone can pass their tag to other students and marking the proxies. It is also observed that loss and damage of cards make this system costlier [11]-[13]. This method was also not put into much use because of security reasons and because of the policies and agreements of any college/company.

4. Client- Server based chat application: Bamane et. al.suggested a very efficient chat application for communicating with people. Server is created so as to maintain an account of number of users who wants to join this chat and server's IP addresses are sent to the clients who wish to join the chat. There is a login/logout option for the users. Whenever, a new user wishes to sign-in then he need to register by filling necessary details. The registered users are given the joining

permissions. When a connection is made with the server after the user has signed in, database is updated i.e. the newly made connection is added. A list of online users is also displayed to registered and connected users. Users are free to create their own or share chat rooms.

5. Upload and Download of study material: Dhale et. al. [8] suggested an approach for managing college's academic activities with a mobile application which introduced portability as mobile phone can be carried anywhere. In this work, an effective system for college management was designed wherein a profile for both teacher and student is created and stored in central repository. An administrator has the rights to add/delete or authenticate entries of any faculty or student. The automated registering system generates a unique identification key for every teacher. With this key, a teacher can login into his account. Further, a teacher can update their details after login. The updated information is made available online to students with

read permission. Further, teachers can access all the information of any student who is in one-to-one chat room for studying or doubt clearing. Every data shared by teacher is available on central server and data shared by students is available to respective student and teacher only.

6. Bluetooth technology for marking attendance: An approach which required MAC address of client's mobile phone to be send to faculty's mobile phone. In this system, student was required to carry a metrics card and RFID Reader [14] was used to get student data and

IV.   ADVANTAGES

- Reduce work on College Website.
- The application will greatly simplify and speed up the result preparation and management process.
- The system is easy to deploy, safe with convenient operations. Access to authorized person only.

V.   CONCLUSION AND FUTURE WORK

This application in automating the existing manual system. This is a paperless work. It reduces man power required. It will provides accurate information always. All years together gathered information can be saved and can be accessed using application at any time. This System is essential in college. All the administrator, HOD, parents, faculty can get the required information without delay. As this application is only made for the general purpose it can be generalize to big scale use such as in colleges, university and even distance education can be benefited from this application as this app can provide all related information according to the ward without direct contacting the staff. Features like video calls between the staff and parents can also be added to this application. In future we can also add the feature like paying the fees of the ward.

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