Android based Student Management System

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ANDROID BASED STUDENT MANAGEMENT SYSTEM

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Abstract–Student management system is the system of tracking of all kind of process done by students on basis of presence in class, tracking of bus, food selection in hosteller's, library books availability online , college updates and events. Successful schools, universities begin by engaging students and making sure that they will update the necessary needs become very important. In this work, a smart student management system is well implemented based on android operating system and works fluently as it is based on online database system called firebase. Along with other traditional management systems, the proposed system will provide faster, cheaper and reachable system for online student complete management and generate the reports automatically.

Keywords–Android, Online system, Traditional management system.

I.INTRODUCTION

The Technology are advanced with the time. Due to the benefits of automated system, Now-a-days the process are done by automation methods that reduce human effects on works. These days, there is necessity needed for automated management systems in schools and colleges that needs to change the role of their manual system to mobile computing systems. The Computer Technology changes use of databases & application of the Education System of students, which helps to make their information and reports as centralized. Android play a vital role. It leads to the inventiveness to the processing of traditional systems.

The traditional organisation uses paper work like register and record books for attendance management. The whole session attendance is stored in either register or record books and at the term end reports are generated. Paper sheets which requires lot of paperwork and is time consuming. There is no existing system which students can look at their progress and analyse for themselves. Colleges not able to provide vital information to students if there is an emergency. This application is to developed to solve the basic problems of college students, it can handle overall problems faced by both days scholar and hostel students like attendances, foods, track of bus, library books, collage updates. Ensure data integrity and security in an open-access environment.

The system being designed is economically with respect to the students and teacher point of view .The goal is to extract useful information from an unstructured data using the concept of information gathering and secure random algorithms. To develop an enhanced student information management system which helps to solve the drawbacks of existing ERP system. The basic approach attempts to develop a smart phone based application using Android which can be used to make this process easier, secure.

II. FEATURES

The feature available are mentioned below:
° Email Sign in.
° Forgot password OTP.
° Allows all faculty sign in.
° Easy usable User Interface (UI).
° Real-time Updates and events.

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° Secure.
° Allow user to retrieve/change password.
° Better and fast updates of events/news are communicated to students.
° Attendances.
° Nearby places.
° Bonafide certificate, leave letter can be applied through this application.
° Food ordering for hostel and days-scholar students.
° College bus tracking available for days-scholar.
° Updating of resent events and notices to students.

III.METHODOLOGY

A. *Software Requirement*

The essential software used in student management system are:

° Operating system: Android.

° Data base: Firebase.

° Language: Java, XML.

° Framework: Java Frame Work.

B. *Safety and Security Requirements*

The security requirements in student management system is:

° The program is very safe and protected.
° Every types of user has unique user id and password to access their account.
° Data security (Firebase).
  -Data recover,
  -Data protection.

C. *Workflow of Student Management System*

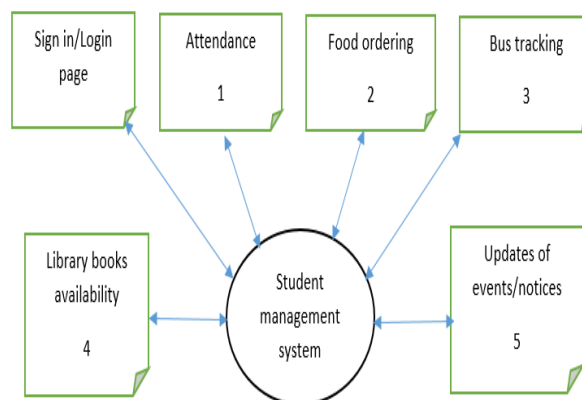The workflow of student management system is described as follow:

Fig 1. Student Management system Design.

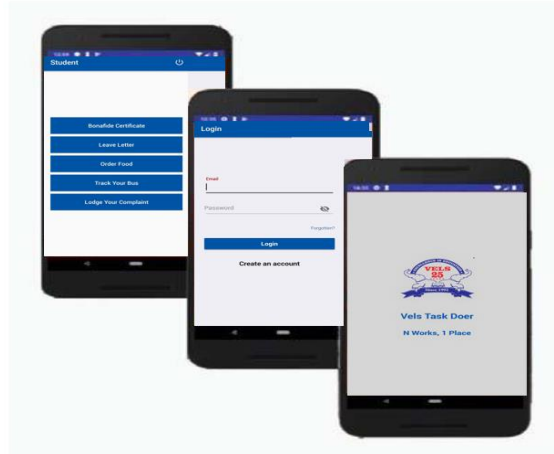# ANDROID BASED STUDENT MANAGEMENT SYSTEM

Fig 2.System Design.

D. Login Page for User

This application provides secure way of login to users. The registration of new users is asked to fill some columns which are used in database (firebase) and retrieved from database while user logged in application, it provides email Id to sign-in and an OTP is also send to the email if forgotten password.
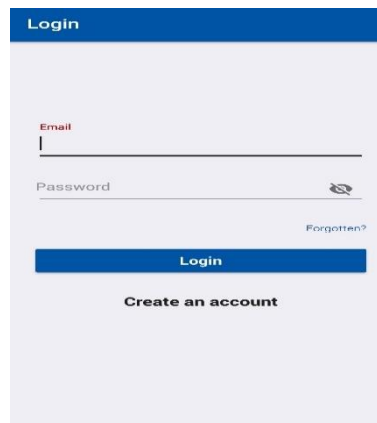

Fig 3.Login page.

E. Attendance in Class

The attendance of every student against each course is set in the basis on their stay in classes. If students has to stay in class, then it's denoted as present. The students who were out of class hour is marked as absent.

Fig 4. Attendance.

F. Bonafide certificate & Leave letter

This option in application provides students to apply bonafide certificate through online by filling the subject and Parents/Guardian name, then it creates a letter automatically and directly send this bonafide to the principal.

The students who are willing to take leave can apply Leave letter through online by filling the reason, then the letter will be sent to the class In-charge as a request and the request can be either accepted or rejected by In-charge.
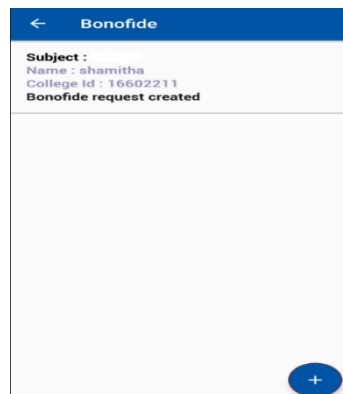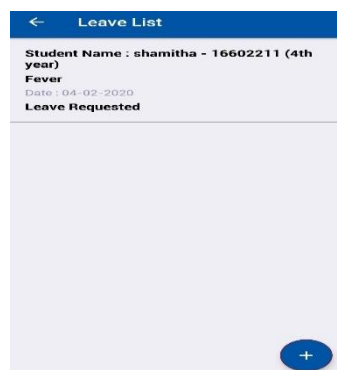

Fig 5.Bonofide.

Fig 6.Leave Letter.

G. Nearby Places

This option helps students to reach the college location by identifying their nearby places, which helps to know them where they are exactly located.

It also connects with GPS and directly leads to Google map in need of reference.

Fig 7.Nearby Places

H. Tracking collage Bus

This system is to track the exact location of a bus by using GPS signal, it helps the students to trace the root of a bus where it is located and the college bus map displayed on the screen.

This feature is only available for days-scholar and faculties and not for hostel students. It prevents the waiting time for the students by simply tracking their bus root.

° Track your Bus button

Fig 8.Tracking Bus

I. Food Ordering

This option is also available for both hostellers and days-scholar. In hostel mess they provide the food details and items in menu that are updated and changed monthly according to the online selection of hostel students in online.

The admin can only able to create or modify food items in the list. For days-scholar they can order foods through online shops that provide food inside or nearby collage.

J. Library Books Availability Online

The library books name, authors name, category and the number of books availability are mentioned in the dashboard and add what book we required in cart for checkout, then Admin gets the information of your Id and book details, that is automated system. Then go to library and get the book directly.

author(authorID:int,authorName:varchar,authorStatus:tinyint,createdBy:int,dateAdded:Datetime,dateModified:Datetime,isActive:tinyint)

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book(bookID:int,categoryID:int,authorID:int,bookTitle:varchar,bookCover:varchar,bookStatus:tinyint,createdBy:int,dateAdded:Datetime,dateModified:Datetime,isActive:tinyint)
subject_category(categoryID:int,categoryName:varchar,categoryStatus:tinyint,createdBy:int,dateAdded:Datetime,dateModified:Datetime,isActive:tinyint)

K. Updates and Events

The new notices and events are updated by faculties and admin are regularly updated through this application so that the information can reach fast to the students. The updates contains the information and place, date and time of an event. Information can be accessed only to the login users.

° Admin profile.
° Student profile.
° Notifications.

VII. RESULTS AND DISCUSSION

User friendly application to solve the problems of students in schools and colleges. This application is tested on android smartphones of version 5 and above. The implementation on the server is done by using java code. The table below concludes that other apps in educational and learning sectors have reached of minimum 1K to maximum 1M or more than that, its success depends on keeping application updated by fulfilling their requirements.

Fig 9. Student Management System Application.

Table 1.Discussion

No.	Application Name	Category	Success/Pass/Fail	Reachable
1	Unacademy	Education App Online	Pass	318K
2	Byju's	Learning App Online	Success	1M
3	Shiksha	Learning App online	Fail	6K
4	Amazon Kindle	e-book App Online	success	931K
5	Career360	Education App Online	pass	22K

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VII. CONCLUSION

Student management system application in term of performance and efficiency, the proposed system has provided a convenient method of all kind of process by students on basis of presence in class, tracking of bus, food selection in hostellers, library books availability in online, college updates and events compared to traditional method of student system. In addition, it is user friendly system as data manipulation and retrieval can be done via user interface, making it universal student management system. And adaptive for implementation in any educational system.

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