

# *Student Management System*

Deepak Saini<sup>1</sup>

Dept. of Information Technology  
Terna Engineering College  
Nerul, Navi Mumbai

Payal<sup>2</sup>

Dept. of Information Technology  
Terna Engineering College  
Nerul, Navi Mumbai

Mansi Ghadigaonkar<sup>3</sup>

Dept. of Information Technology  
Terna Engineering College  
Nerul, Navi Mumbai

Prof. Sujata Kadu<sup>4</sup>

Dept. of Information Technology  
Terna Engineering College  
Nerul, Navi Mumbai

*Abstract— We propose, an automated model for a Student Management System for Terna Engineering College, Nerul, Navi Mumbai. It's going to be an automated web application that converts the traditional pen and paperwork into a computerized online system. This will be obtained by carefully studying each user, its role, and it's level of hierarchy in the institute. Each user will fall on a different level of the hierarchy pyramid and will be given its own set of roles and permission so that there is no mix and match of user's responsibilities. By making use of the online platform and our computerized system, the level of efficiency of the institute will increase tenfold and bring the level of quality of administration into that of the level of education.*

**Keywords- Role Based Model, Software Development Life Cycle, Statistical Information, Framework.**

## I. INTRODUCTION

Traditional system which was mainly paper-based, required large amount of space to store information. It limits the exchange of information, updating and causes loss of documentation. A collaborative work in this system becomes rigid and degrades performance.

This project on student information management system is one complete information management solution for students and staff of any educational institution. In today's world, it is a need to organize huge amount of data than ever before. In the absence of a great infrastructure for faculties, students and departments, management to exchange data, crucial information about students and organizations can be misplaced, which can cause loads of problems that can affect the reputation of the organization. For an academic institution, the data handling should be an easy

task for which online approach is a must. Following which the proposed system uses internet as the solution for global access of data, record keeping and managing details of students which makes the student management system centralized. At one time, the school depended intensely on paper records for this activity [8]. However, their use is not as widespread in universities in India [9]. The Management employees can now easily use this system to create records, keep attendance records, fee payment status which is a very time-consuming activity.

## II. MODULES

There are three main modules in this proposed system. According to the role based hierarchy their functioning and privileges are given below:

### A. Student

Once the student has registered in college the administration provides them with user credentials to log into the system.

Due to the role-based access model the user will get only those privileges for which one has registered. Here, the user is a student, so the privileges of students are:

- Viewing and editing profile dashboard.
- Viewing timetable, calendar, and notice boards.
- Access to fee payment gateway.
- On the self-help portal students can fill railway concession form and request for organizing any events in the college.
- Contact/ Complain/ Request Form.

*B. Teacher*  
Teachers will grade attendance by clicking the section for which the attendance is required. They will also be able to rectify the record if an incorrect attendance record is found. Students will be able to read their attendance but cannot make any changes to it. Attendance which is already marked will only be corrected inside a week, subsequently it cannot.

### C. College Management

**Admission System:** Management staff can update the details of students taking admissions. The students are categorized by their departments and sections. The details of admissions of fresher's batch are added to the system and existing details are modified according to the year of admission.

**Accounting system:** fee details of the students are updated and modified by the accounting department. The students are categorized by their departments and sections. Updates such as fees paid, or unpaid and defaulters list are generated here.

## III. LITERATURE SURVEY

Literature was reviewed from various sources, like from research papers, publications books, existing bibliographic information, and recommendations by the project panel. These research papers has provided us sufficient amount of data for the survey.

Automation can be defined as the process of reducing or minimalizing the manual hard work with help of computers, computer operated software and devices. There are certain works that are beyond human capacities which can be carried out through automation techniques. Library Automation System of the University of Toronto in 1963-1972 [1] was one of the first achievements to manage the data with the help of automated system. The real idea of implementing Automation is to enhance efficiency, reduce delays, increase production flexibility, reduce prices, human error elimination, and alleviate labor shortage, high degree of accuracy [7]. Automation in Educational Assessment created in Nigeria [2] shows how an online automation system can be implemented to eradicate human errors and bring fairness during the exams. Defining the Paperless Workplace with the Paper Metaphor [5], has explained the difficulties faced by the organization while switching from conventionally used paper based system to an online automated system as they were not able to draw the gap between both the systems but automated Project Grading & Instant Feedback System [4] provides an example of an automated system which enhances the efficiency of manual project grading system with feedbacks can being easily managed.

The hierarchical approach is followed in the institutional organizations. Teachers, staffs and students have different privileges. So for this system we have used access control method which suits the ranking that is the role based access control method. Since there are large number of users present in an academic institution it is a prime requisite to grant certain privileges to each users according to their positions so that the sensitive information is not misused. The role based access control makes it easy for the system to differentiate between its users which makes the system faster without any lagging. There are certain activities restricted to specific users so to avoid the violation of code of conduct fairness is maintained in the system. Thus, the new system is named as the student management system.

The prevailing offline paper based system has several disadvantages such as excessive use of time for manual record keeping, wasting resources, inefficiency in data logging as inconsistent data can be recorded. Most of the academic institutions still use this traditional method for student management.

The data and information of any student is not accessible globally as the system is not online due to which the concerning users have to physically meet for the exchange of information. Students have to stand in long queue and wait for hours to perform basic tasks such as fee payments and submit railway concession forms. Students are also not able to view their own attendance record and college notices when needed. To overcome the limitations of an existing system, we have proposed a web-based student management system. It is an online automated approach, advanced for everyday record keeping in academic organizations.

It makes it simpler to get entry to the statistics of a scholar in a specific class. This system helps in evaluating the all-around development of students on a single platform. With just a click, the web application will be able to provide the student's attendance report, defaulters list, fee details, admission status, etc. Thus, decreasing the need for iterative manual work which is susceptible to human faults and time expending. It is built for the automation of student management. It also increases the performance speed of record keeping, information gathering, and status analysis easily.

A student management application is a domain where the student documents and records in the institutional organization are processed. It works with the help of automatic computed techniques. Traditionally it was done using ledgers, files, binders, and manual documentation. The proposed system provides assistance to both, the student and the faculties while saving time. It involves procedures like registering the scholar's details, assignment of the department according to the course chosen, and maintaining records. It cuts the value and personnel needed for the job. Since the system is online, the data is accessible to everyone. This feature makes it efficient and useful for simultaneous data access anywhere anytime.

An Integrated Automated Paperless Academic Module [6] explains that the online system should follow the same approach of management of hierarchy maintained by the offline paper based system. Creation of user hierarchy: The facility of acquiring the resources is mainly dependent on the ranking of the employees in an organization.

Role based hierarchy constitutes of various forms of roles that are linked together. A contrast is created amongst institutional and task roles.

#### IV. CONTRIBUTION

- Creating an application for organizations interested in the automated student management system.
- Displaying records on the dashboard
- Dealing with the problem occurring during manually managing student information.

#### V. PROPOSED SYSTEM

Student management web-based system is the process of managing student's record in an institutional organization. It is done through the online method which traditionally, was prepared using papers and manual ledgers.

It preserves student's and administrator's resources. This system provides a simple interface for the maintenance of student information [3]. It involves procedures like registering the scholar's details, assignment of the department according to the course chosen, and maintaining records. Being an online system, the availability of information is worldwide which means accessibility and exchange of information is global. This data is stored safely in the repository that makes it simple to acquire and data modification can be done whenever required. It is the software created for everyday student record management in academic institutes.

It helps to fetch the data of student from a specific class just by few clicks. This system will also help in generating a status report of a student such as total attendance, the event requested, fee payment details, admission info, and so on. Click on the mouse and the system will produce the students' report which reduces the requirement for manual labor which is vulnerable to errors and time expenditure.

This application is constructed for automated processing of student record management. It even enhances the speed of solving tasks. The Student information will be stored according to the batch, department, and section. The student and staff have a unique user login id and password available through the OTP concept for an email

verification for valid user [10] The student can only view and edit their profile information, fill railway concession forms, put event request queries but they can only check the updates and details regarding attendance, fees payment, admission status, etc.

The staff can view as well as modify the attendance record, fee details, admission status as well as grant permission for event organization, and so on. A printing facility for attendance records, notices, and other records is available for both students and staff.

## VI. METHODOLOGY

For the creation of this automation based application system we have used the process of software life cycle development model. Since the requirement of the project was not exactly defined at the initial stage we have used prototyping model approach for this system. In the prototyping model, the software is created with early requirements provided and further improvements are done as the requirements are made clearer. It is a way of swiftly creating a function with a limited amount of data while gathering more information. Once the information is gathered the prototype is reworked accordingly.

### MODULES OF THE SYSTEM:

#### 1. STUDENT

Once the student has registered in college the administration provides them with user credentials to log into the system. Due to the role-based access model the user will get only those privileges for which one has registered. Here, the user is a student, so the privileges of students are:

- Viewing and editing profile dashboard.
- Viewing timetable, calendar, and notice boards.
- Access to fee payment gateway.
- On the self-help portal, students can fill railway concession form and request for organizing any events in the college.
- Contact/ Complain/ Request Form.

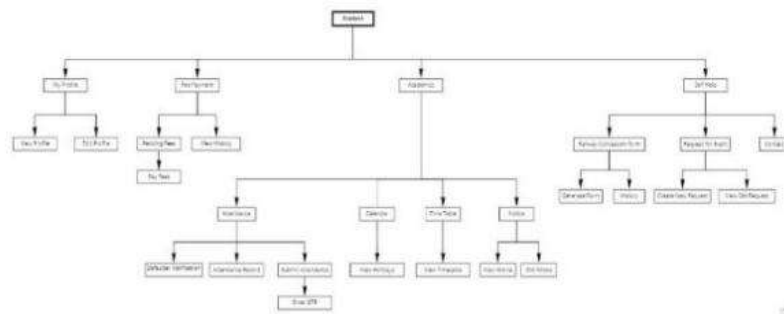


Fig 6.1 Information Architecture Diagram of Student

#### 2. TEACHER:

- Attendance management system:

Teachers can take attendance by selecting the section of a given department they need. Teachers will also be able to modify the attendance of a student if wronged by chance. Students can only view the attendance for their respective lectures. Wronged attendance can only be amended within a week followed which it cannot be changed.

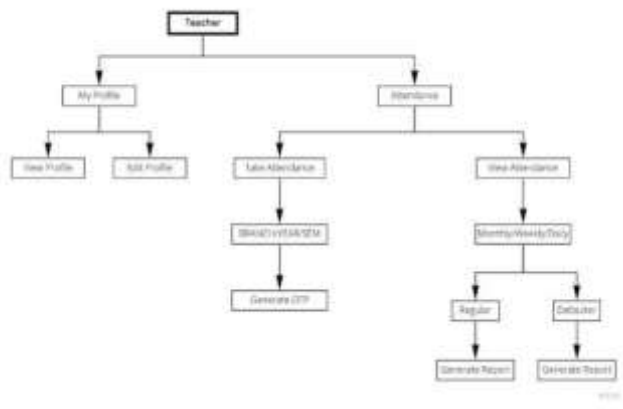


Fig 6.2 Information Architecture Diagram of Teacher

### 3. COLLEGE MANAGEMENT:

- Admission System: Management staff can update the details of students taking admissions. The students are categorized by their departments and sections. The details of admissions of fresher's batch are added to the system and existing details are modified according to the year of admission.
- Accounting system: fee details of the students are updated and modified by the accounting department. The students are categorized by their departments and sections. Updates such as fees paid, or unpaid and defaulters list are generated here.

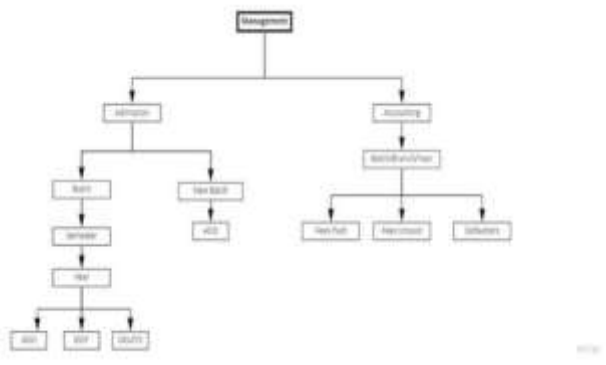


Fig 6.3 Information Architecture Diagram of Management

## VII. TECHNOLOGY STACK

**HTML:** Hypertext mark-up language is used for developing web pages for a website. Internet browsers read HTML files and convert them into websites which is the combination of web pages. HTML objects are the basic requirement for building all websites. It permits pictures and items to be included which is useful in the construction of user friendly forms. It gives a way to construct structural format such as heading, paragraph, list, references (links), quotes, and other objects.

**CSS:** It provides the layout for styling the web pages. The Cascading Style Sheet is a recommendation from the W3C, which specifies the possible style sheets that help to decide how elements are existing in a website and visualizes how HTML objects are presented online.

**PHP:** It is widely used with sequential query language databases on Linux servers. This is a widely known language for scripting that is freely available for sql databases.

**MySQL Database:** MySQL is the majorly used non-proprietary database. It is very efficient and its performance is very high that is why it is used for popular web based application such as youtube, facebook etc.

## RESULTS

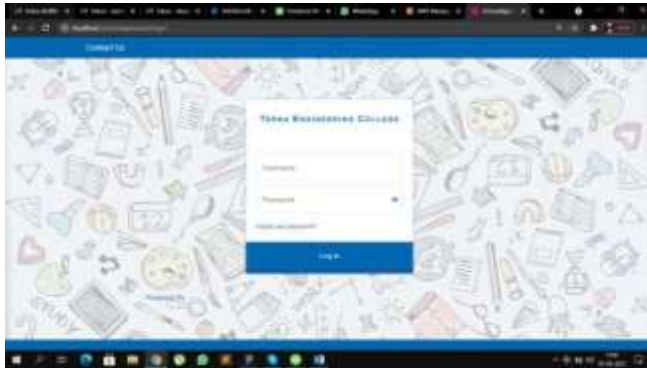


Fig- 8.1 Login Page of Teacher



Fig-8.2 Student dashboard

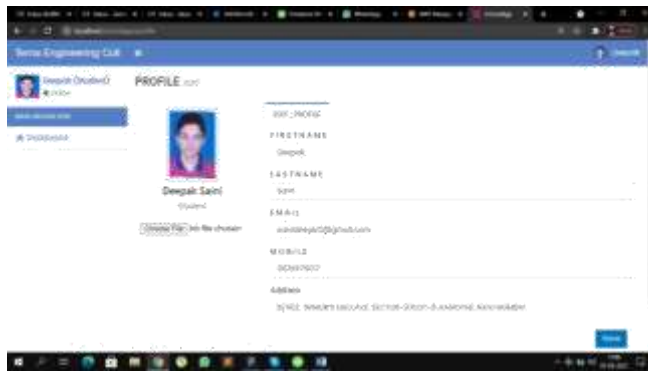


Fig-8.3 Student Information Page



Fig-8.4 Student dashboard notification after Profile being changed

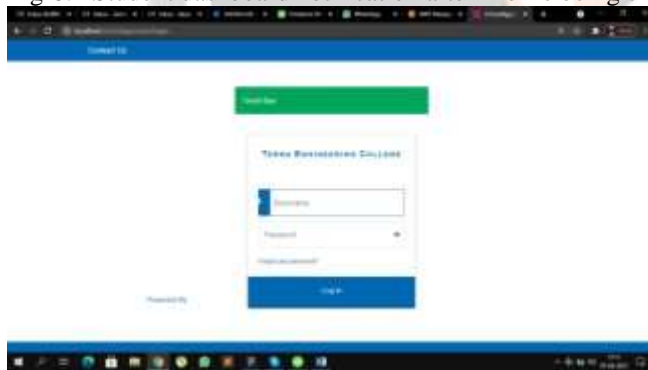


Figure 8.5 Student Login Page

## VIII. CONCLUSION

Finally, with due diligence, the student management web-based Application system is carried out. It is system that assists the user to work with the day to day activities involved in the academic institution. It lessens the amount of manual hard work and provides greater efficiency diminishing the amount of time taken for detailing different modules. The interface provides user-friendly experience to everyone. Only verified users can access the information concerning students and faculties. At last, we may state that the performance of this new system is accurate, precise and it successfully performs the assigned tasks.

## REFERENCES

- [1] Ritvars Bregzis, Calvin Gotlieb, Carole Moore. The Beginning of Automation in the University of Toronto Library, 1963-1972, in IEEE Annals of the History of Computing, 2002.
- [2] Prof. Godswill Obioma, Prof. Ismail Junaidu, Dr. Grace Ajagun. The Automation of Educational Assessment in Nigeria: Challenges and Implications for Pre-service Teacher Education, 39th Annual Conference of the International Association for Educational Assessment.
- [3] Jou M, Shiau JK, Zhang HW. Application of Web Technologies in Automation Technology Education. International Journal of Computers and Applications. 2009; 31:4.
- [4] Xiang Fu, Boris Peltsverger, Kai Qian, Lixin Tao, Jigang Liu. APOGEE – Automated Project Grading and Instant Feedback System for Web Based Computing, Computer Science and Information Technology, 2nd IEEE International Conference, 2009.
- [5] Gerald Weber. Defining the Paperless Workplace with the Paper Metaphor-Not a Contradiction in Terms, Conference: Proceedings of the Fourth Australasian Workshop on Health Informatics and Knowledge Management, 120.
- [6] Prita Patil, Kavita Shirsat. An Integrated Automated Paperless Academic Module for Education Institutes, International Journal of Engineering Science Invention Research & Development. 2015; I:IX.
- [7] Sarthak Langde, Avinash Maurya, Tanvi Nakhawa, Anurag Sinha, Smita Patil, Kriti Karanam and Harshali Mugutrao. Automated Attendance System, International Journal of Applied Research. 2018; 248-249.
- [8] Saurabh Walia et al, International Journal of Computer Science and Mobile Computing, Vol.3 Issue.8, August- 2014, pg. 24-33
- [9] Prabhu T Kannan, Srividya K Bansal, "Unimate: A Student Information System", 2013 International Conference on Advances in Computing, Communications and Informatics (ICACCI)-p-1251-1256
- [10] Suraj Kishor Desai, Shahrukh Attar, Sonali Haridas Mane, Kalyan Bandu Dethé and Archana Lomte. Online Scientists Information System using AES. *International Journal of Computer Applications* 176(11):29-31, April 2020

