Cloud-Based College Student Management System

[1]Anushka Joshi, [2] Anuja Amale, [3] Arya Tayade, [4] Gauri Khorgade, [5] Parthavi Ingole, [6] Pallavi. H. Dhole
[1,2,3,4,5] UG Students, Department of Computer Science Engineering, Sipna College of Engineering & Technology Amravati, Maharashtra, India
[6] Project Guide, Department of Computer Science Engineering, Sipna College of Engineering & Technology Amravati, Maharashtra, India

Abstract-The cloud-based college student management system (CCSMS) is a user-friendly college web application. The system aims to discard the unorganized way of sharing important information on social media. CCSMS helps convey notices, placement information, and other college-related information in a systematic way on a single platform. The three-user type login system including admin, faculty, and student with their respective panels helps keep the system secure and uncomplicated. Different modules are designed keeping in mind all the problems students and teachers face while communicating information. All the necessary college updates and opportunities can be easily uploaded by faculty and accessed by students. Keeping in mind the need for better management and accessibility of the college website for students, the whole CCSMS system has been built on the cloud. In all, the proposed system presents a better and more efficient way of communicating information than social media groups or the traditional paper-based system.

Keywords - cloud, AWS, EC2, student management, student information system.

1. INTRODUCTION

CCSMS aims to revolutionalize the existing college websites by adding more advanced management modules to the system and deploying it on the AWS cloud. The system can be accessed on both Windows and Linux operating systems if deployed on a local host. The infrastructure is designed by considering end users as the students to have easy access to all the instructions and notices provided by the organization. An AWS Elastic Compute (EC2) provides common REST APIs to all endpoint users. To provide possible higher security to the system, it has started with an admin panel. A single college authority has been assigned to create login credentials for both students and faculty. And only then the other users like students & faculty can enter the system.

The backend is responsible to perform major activities such as processing and analyzing the data. Based on this, different reports and queries can be generated that encompass functionalities like eligibility criteria for each student. All the educational and curriculum updates can be provided by filtering a group of students or to all students as per the requirement. The college administrator has a hold on the SQL server where the entire data is stored securely. The system's user interface is quite simple and any user will get familiar with a few clicks.

1.1 Problem Statement

The old and traditional student management system is paper-based or hard to maintain college websites (which are not user-friendly and thus of no use). Many times, students don't notice important information and lose opportunities. For example, a student busy with academics may not notice a job placement chance shared on a common group where nothing is categorized. It might have been the best job description-resume fit for the student. If we keep using the same methods, like posting all the notices (including placement opportunities, college or sports events, courses, notices, assessment results, and queries) in an uncategorized way on some social media then a lot of opportunities will be missed.

1.2 Objectives

- To design a user-friendly, cloud-based college student management system.
- Make college record management more effective.
- Provide a personalized experience (Example - the student dashboard will only contain links for job placements according to their eligibility.)
- Reduce the time needed to provide and access important college-related information.

- Reduce time spent on activities that don't provide value.

2. LITERATURE REVIEW

S.R.Bharamagoudar, Geeta R.B., and S.G.Totad [1]proposed a web-based student information management system. The design and implementation of a comprehensive student information system and user interface will replace paper records. College staff can directly access all aspects of a student's academic progress through a secure, online interface embedded in the college's website. The system requires user authentication, displaying only information necessary for duties. All data is stored securely on SQL servers managed by the college administrator and ensures the highest possible level of security. This system provides a simple interface for student information maintenance. It can be used by educational institutes or colleges to maintain records of students easily.

Lalit Mohan Joshi [2] proposed a College management system. CMS is defined as an application based on the Intranet that aims to all management levels providing information within an organization. This system can be used as a college information management system. A given student/staff (technical/Non-technical) can access the system to upload or download some information from the database. This system (C.M.S.) is being developed for an engineering college to maintain and facilitate easy access to information.

Osman Nasr, and Enayat Alkhider [3] proposed an online complaint management system. Online Complaint Management System provides an online way of solving public problems by saving time and eradicating corruption. A complaint system is a set of procedures used in organizations to address complaints and resolve disputes. Online Complaint Management System provides an online way of solving public problems by saving time and eradicating corruption. And The ability to present many of the reports on the system, and Facilitate the process of submitting a complaint.

Sagar Pawar, Gaurav Geet, Pavan Sonawane, and Chetan B. Barhate [4] proposed a college ERP system. The existing system provides a user-friendly interface. The College ERP system now computerized all the details that have been manually entered into the system. Once the details are fed into the system or computer there is no need for individuals to deal with separate sections. Only a person can maintain all reports and records. The aim of the deployment and implementation of this system is to replace the manual system of colleges with an automated web-based system. This college ERP system also manages data accurately and efficiently stored over a long time. An ERP system for colleges provides access to all administrative systems through a single point of entry.

3. WORKING METHODOLOGY

The project is based on a student management system that has three separate users named Student, Faculty, and Admin. Each one of them carries different access and permissions to provide better management of tasks and security. Authorized users can easily upload, delete and modify the information according to their requirements and responsibilities.

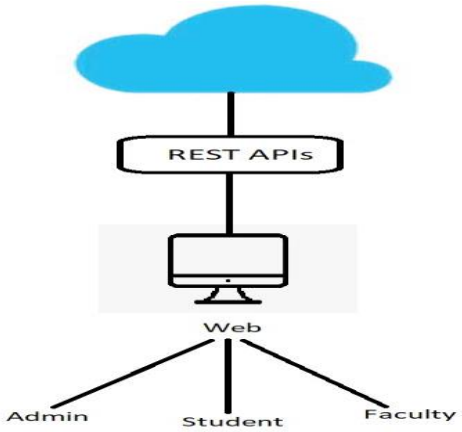

Fig-3: System Overview

3.1 USERS

3.1.1 Admin

Admin user represents the college system. Any authorized college authority can have access by knowing the login credential, and the login credentials can be conveyed by any secure communication method decided by the college. The admin user doesn't have the registration choice, so there will not be any threat to security (nobody would easily be able to impersonate the college admin).

The admin has only two tasks to perform:

- Registering students and faculties into the system (like enrolling new students and faculty into the college management system)
- Granting access to faculties, i.e there are different tasks a faculty can potentially perform such as regarding jobs or regarding other things. This access is assigned by the admin. The faculty then

will have permission to perform tasks regarding the particularly assigned responsibility.

After registering a faculty or a student, the login credentials generated will be conveyed to them in any form the college sees fit. They can choose emails, messages, or other points.

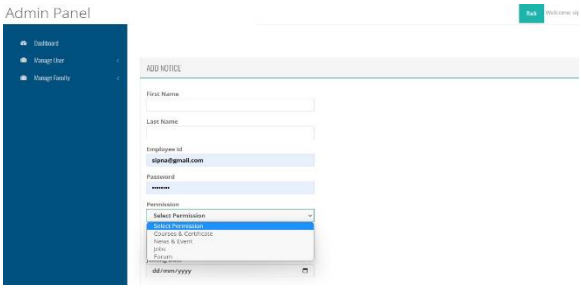

Fig-3.1.1: Admin Panel

3.1.2 Student

The system has been built to convey important notices to the student on a single platform. Login credentials for each student will be given by the admin (through any convenient way like emails). Once the student logins into the panel they can edit their profile by uploading some important data and documents and can perform other tasks which are mentioned in the modules section. Based on their uploaded data student will get notified by the faculty user.

The student dashboard has many modules that require some crucial information about students. This information can be uploaded by students on their student profiles. They can upload:

- Their percentages and educational credentials which will be used by other modules for segregating students. This will be important for sending notices to particular groups of students and also in the job's module for eligibility criteria.
- Their documents (cv, mark- sheets, etc) to store in one place on their student profile
- Other details such as personal (name, address, age, gender) and contact information.

Training & Placement (T&P) and Notice & Events modules are based on the eligibility criteria of the student. For the modules like T&P and Courses, students can simply register based on their interests.

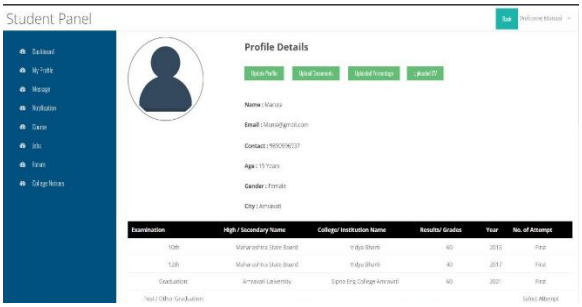

Fig-3.1.2: Student Panel

3.1.3 Faculty

The faculty can log into the system with the credentials provided by the college authorities after the admin have created their profile and assigned them the responsibilities. Once they log in, they would have a dashboard with particular choices regarding the tasks they can perform as per their responsibility.

For example, if at registration a faculty has been assigned the job section, they will have the access to add jobs, view the applied student list, etc. And they would not have the access to other modules such as notices. This is done to keep the responsibilities clear and precise, so no faculty would be loaded to do an unmanageable number of tasks.

Fig-3.1.3: Faculty Panel

3.2 MODULES

3.2.1 Training and Placement

Faculty - Authorized faculty assigned by admin can post job profiles along with their description (including eligibility criteria). And share placement-related updates such as campus DRIVE to the selected students by the companies.

Student - The system will match the job requirements to the student's academic achievements and based on the results, job placements will appear to only eligible

students on their profile panel. And they can apply for the respective jobs.

3.2.2 Notices and events

Faculty: Faculty will have the Notices and Events module on their dashboard if they have been assigned it at the time of registration. The faculty can upload and delete notices. While uploading they have the choice to keep it open to all or target a particular field and year.

Also, they have access to the list of all the students from which they can select a few (as per their requirement to send messages). For example, if some students have qualified for a sports event, faculty can convey the details through messages.

Student: Every student will have the notices and events module on their dashboard to view important notices or information about upcoming events. And if they have been sent a message in particular, they would be able to see it on their messages page. The messages page is accessible through the dashboard.

3.2.3 Courses

The course module is open for the entire department (from first year to final year) students who are interested in pursuing any particular course or internship.

Faculty - Assigned faculty will post the coursework and internships through the faculty panel. Once the students register for the particular session, the faculty can accept their registration and will provide the certificates after the completion.

Student - All the courses and internships posted by the faculty will appear in the course's module of the student. Anyone with an interest can register for the course/internship, once the faculty approves the student they can start learning in the given timestamp.

3.2.4 Forum

This module is the same for teachers (faculty) who have been assigned this module and for all the students. The forum works in a QnA type of format. Any student facing difficulties in terms of any subject or topic can post their query on the forum. Anyone among the students or faculty can provide the answer. This will help provide a better learning experience and support.

3.2.5 Notification

This module is to convey updates about the course/ internship selection and job updates to the students. For example, if a student applies for a course and the faculty approves their application, the student will get notified by this module. After the completion of the same course, faculty can give the certificate to the student from the Courses module and it will also get notified in the notification module.

4. CONCLUSION

This paper assists in developing a cloud-based, user-friendly college student management system. It is a modern approach to traditional ways of supplying information to students. It provides the latest information in an organized way. And also help the authorized faculty in uploading and updating information more precisely and in a faster way. Any faculty and student can access the system with a few clicks. Students will not have to keep track of all different notifications about various important information. They can have all the information in one place, which will help them not miss out on opportunities and notices. In all, a web-based system is a more efficient structure for faculty, students, and others to manage and participate in all college activities.

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