

Optimized Solution for Digital College Management System

Prof. Aadarsh Malviya, Omkar, Akhilesh Chaurasiya, Jyotirmaya Pattnaik, Deeksha Gupta, Aayush Mishra
¹Department of Computer Science & Information Technology, Dronacharya Group of Institution Greater Noida
omkarsolanki612@gmail.com

1. Abstract

The College Management System is a Android OS based software application designed to make paper-less and digitalize colleges. The system helps colleges to manage and organize the Attendance more efficiently and Placement, enabling them to attract and retain top talent. The CMS offers features such as job posting and Apply. Take Attendance and view the Attendance list, and write applications for specific faculty. And time-table upload and view. The CMS simplifies the entire college student and faculty profile and activity and reduces the administrative workload on paper. The system also provides a better student experience by allowing them to apply online, track their application status, and receive timely updates on their progress. In conclusion, the College Management System is a powerful tool that helps students and faculty to communicate easily and share activities without paper. The system offers a range of features and benefits that make it.

Keywords: Android Development, College Management System, Optimisation, Student Dashboard

2. INTRODUCTION

The College Management System (CSM) is an android operating system based platform designed to help colleges and their students and faculty. The CSM offers a comprehensive solution for managing the entire student and faculty activity, from taking attendance and downloading attendance sheets and posting job listings to making offers, in a centralized and automated way. The system's main objective is to reduce paper and easy to get college documents and data by using technology to eliminate inefficiencies and create a more effective system for faculty, student, and registrar. Traditionally, College faculty and Student activity has been a mutual process that involves a significant amount of paperwork and administrative work. Students and faculty are required to maintain spreadsheets, databases, and paper records to keep track of the activity, which can be inefficient and time-consuming. Additionally, the traditional College Management process is not optimized for the digital age and may not be able to attract and retain top talent efficiently. The CMS also offers several benefits to faculty and students. One of the primary advantages of using the CSM is that it saves time and reduces the workload of faculty by automating many of the administrative tasks associated with placement. The system's analytics and reporting features provide valuable insights into the attendance process, allowing faculty to take.

Another advantage of using the CSM is that it provides a more engaging and personalized experience for student. Student can easily apply for jobs and write multiple types of applications like leave suggestions and the status of their application in real-time. The system allows faculty to communicate with students through the platform.

The three main users involved in this system are

- 1..Student
- 2.Faculty
- 3.Administrator

3. Literature Review

The literature receives section provides an overview of existing research and scholarly articles related to android, catering system based applications and collage thanded det explores the current state of the field, identifies research gaps, and highlights the significance of the project

The discussion will first center on defining what is meant by "collage management" and how that concept has evolved over time. Second, it will go through the advantages and disadvantages of College Management application, as well as how it may be used to our advantage in file management and placement. This examines the steps through which technological innovation might occur and links two of the most popular theories that might be used to explain the acceptance of new technologies. It is thought that civilizations' strength is greatly influenced by their knowledge base and by how well they are able to view information. Collage management is one of the education app outcomes that has surfaced from the development of Collage Activity. Its general concept is essentially to read data which involves the usage of any electronic device, from computers to mobile phones, and which might, or might not, involve the usage of the internet (Web sites other applications) or an intranet (Local network system).

1. Importance of College Management system:

College Management could be presented through Android operating system, other applications have been developed specifically for College Management, such as virtual collage, which provide the user or the reader with numerous **facilities like** comfortable access to learning materials, communication with lecturers or trainers and the other peers.

2. College Management Android OS based Applications:

The facilities offered via the Collage Management Systems (CMS), This proposal is an extensive set from the options and communication tools to service the information and their students' interactions and implement daily activities.

4. Materials and Methods

4.1 User Registration

In this app two type of user registration

1. Student
2. Faculty

Student provide their basic information in basic information section such as name, password, collage roll No, University Roll No, Mobile No, Parent contact No, email address, Gender, and another second is college information such as specification, branch, year, semester, section, to create an account and registration will in pending list for verify to admin.

Faculty provide their basic information in the basic information section such as name, password, Employee Id, Mobile No, Email address, Gender to create an account and registration will be in the pending list for verification to the admin.

4.1.1 User Login

In this app three type of user login

1. Student
2. Faculty
3. Admin

1. Students enter their college Roll No and password to authenticate themselves. The roll No and password are validated against the information stored in the database. If account is verified bom adwin then will open dadded (home page 1 of application, otherwise show the message for pending verification account

2. Faculty enter their Employee id and password to authenticate themselves. The employee al and password are validated against the information stored in the database. If account is verified from admin then will open dashboard (bene page i of application, otherwise show the message for pending verification account

3. Admin enter their user Id and password to authenticate themselves, if correct then open dashboard (home page 3 of application, otherwise show the message please enter valid user id and password

4.1.2 Student Dashboard

In this Section, students can see
Student Dashboard: In this section, student can see

1. **My Profile** - > In this section student can assign can get own profile

2. **Bus status** - >In this section student can see current location of bus

3. **Write application or Query** - >In this section student can write application or suggestion type of application

4. **Application status** -> In this section student can view status of applicaiton

5. **Time Table** -> In this section student can see our class time table only.

6. **Attendance** - > in this section student can view all attendance and overall percent of

7. **View Job** - >In this section student can see all posted list of job and internship and apply.

8. **My Resume** - > In this section student can see manage own resume for apply job and internship.

4.1.3 Faculty Dashboard

In this section, faculty can see

1. **My Profile** -> In this section faculty can assign can get own profile.

2. **Update Bus status** - > In this section faculty can post current location of bus while in collage bus

3. **Application Request** - >In this section faculty can get list of application they are pending for approve.

4. **Student details** - > In this section faculty can view particular student profile in student list

5. **Take Attendance** - > In this section faculty can take attendance of particular course, branch, year, semester, section wise.

6. **View Attendance** - >In this section faculty can view attendance list of particular data and download it anytime.

4.1.4 Admin:

Dashboard. In this section, admin can see

1. **Teachers record** - >In this section admin can assign teacher subject and section.

2. **Subject upload** - >In this section admin can upload all subject for specific branch. 3. Post Time-table in this section admin can post the time-table of class fine specific benoch, serioster, section,

4. **View time-table** - > In this section admin can view upload time-table,

5. **Post job** - > In this section admin can post the can post the job,

6. **View job** - > In this section admin can view posted job

7. **Apps account** - > In this section admin can verify the new user they have registered in

8. **Check account** - > Admin can view the account of particular user

4.1.5 System Admin:

Dashboard: In this section, admin can see

1. **Upload banner** - > In this section admin can upload banner of collage.
2. **Happening upload** - > In this section admin can upload happening result
3. **Upload course** - > In this section admin can upload course of collage

5. COMPARISON

Table 1 Comparison of Pre-existing model vs proposed model.

1. INNOVATION AND ORIGINALITY

The Proposed model is enhanced by integrating emerging technologies blockchain. Blockchain technology will help automate processes, improve data accuracy, and enhance user experience. This highlights the importance of collaborative processes in circular innovation. The proposed model is made more innovative by incorporating collaborative features such as co-creation, co-design, or co-production. This can help engage stakeholders, foster innovation, and create shared value.

2. Efficiency and Effectiveness

The proposed model is made more efficient by automating processes such as data entry, workflow management, and reporting. This can help reduce manual effort, minimize errors, and improve throughput. Also is made more effective by implementing a

modular architecture that allows for easy integration with existing systems and processes. This can help reduce complexity, improve scalability, and enhance flexibility.

3. User-Friendliness

The proposed model is made more user-friendly by implementing an intuitive user interface that is easy to navigate, visually appealing, and provides clear instructions. This can help reduce user confusion, minimize errors, and enhance user experience. This includes responsive design that adapts to different devices, screen sizes, and orientations that can help ensure that the system is accessible and usable on a variety of devices, including smartphones, tablets, and desktop computers.

4. Technological Integration

The proposed model is made more technologically integrated by implementing an open architecture that allows for easy integration with other systems and services. This can help reduce complexity, improve interoperability, and enhance flexibility. This includes data analytics and visualization tools that provide insights into user behavior, process performance, and system utilization. This can help identify trends, patterns, and opportunities for improvement.

5. Cost and Resource Efficiency

The proposed model can be made more cost and resource efficient by implementing outsourcing and offshoring, such as contracting with external service providers, freelancers, or remote teams. This can help reduce labor costs, improve scalability, and enhance flexibility. It is made more cost and resource efficient by implementing a continuous improvement program that focuses on identifying areas for improvement, implementing changes, and measuring impact.

The feasibility study assesses the practicality and viability of implementing the College Management Android based application using the selected technologies. It examines technical, economic, operational, and schedule-related aspects to determine the project's feasibility.

6. FEASIBILITY

1. **Technical Feasibility:** Evaluate the technical feasibility of implementing the College Management

Android OS based application using Android SDK (Java), and REST-API for Java Servlet and for database MongoDB. Assess the availability of required development tools, libraries, and frameworks Consider compatibility, scalability, and performance factors associated with the selected technologies

2. Economic Feasibility: Conduct a cost-benefit analysis to determine the economic feasibility of the project.

Identify the costs associated with development, hosting, maintenance, and potential licensing or subscription fees

3. Operational Feasibility: Assess the operational feasibility of the College Management android OS based application by considering the resources required for its implementation and maintenance, and the availability of skilled personnel or the need for additional training

Identify any potential operational challenges and strategies to overcome them

4. Schedule Feasibility: Develop a project schedule and timeline, considering the project's scope, available resources, and potential risks

Evaluate the feasibility of meeting the project deadlines and milestones. Identify any critical dependencies or factors that may impact the project schedule.

7. METHODOLOGY

In a College various type of sanding and the ways used in collages, and student sond De voliage management application software are make recyt In app time-table section gemide the flexibility to view time-table, student can view from anytime and anywhere is the college while placement start then collage maker for th the upcoming company and don will get this type of information while he her go to daily haves collage, otherwise missed the coming placement sheet. In this application provide the job section to pest and view jobs. Faculty can post job reference and also registration details and student cas through their own resume, resume section is another functionality to modify with needed details e apply that joke manage student and for faculty full profile with needed details.

While faculty post the job, then all user get message notification in app for notify, faculty also download applied apply form, specific job sender can download a file sheet of applied jobs and also another big issue face by faculty to manage attendance file and arrange and fetch the particular student on particular data it is take long time to view.

In the application software attendance section is another methodology to manage student

attendance sheets. Teachers can take class attendance through an application and download all lists of attendance in a single file, and faculty can share and print to hard copy.

7.1 Objectives of the Application

Primary objective:

Collage management app: it provides the flexibility to get information and easy to manage it.

Secondary objectives:

- To Make paperless work.
- To authorized for particular user to view data and upload data
- To know which elements are more impactful for faculty and student

7.2 Integration of Java with MongoDB

1. Introduction:

This section provides an overview of the integration of Java, a powerful web development framework, and MongoDB, a lightweight and non-structured and noSQL database. The integration between Java and MongoDB offers a robust and efficient solution for developing REST-API applications.

2. Understanding Java and MongoDB:

Java: Explain the key features and benefits of Java J2EE web framework, including its emphasis on rapid development, code reusability, and adherence to the Model-View- Controller (MVC) architectural pattern.

MongoDB: Provide an introduction to MongoDB as a server and embedded database engine. Highlight its advantages, such as simplicity, efficiency

3. Integrating Java with MongoDB:

Configuration: Explain the steps to configure java to use MongoDB as the backend database. Describe the necessary details in the Java project to establish the connection. Database Models: MongoDB support not-structure json data and it is very dynamic

8. CONCLUSION

Users can access his accounts all in just one login which saves the user time and effort. Even in our College Management system, we have provided the user with an option to view their different functionality and their faculty members. Also from the security viewpoints, this portal is safe for both Instructor & student due to the manual verification system of the portal. Only when a user is verified by the admin manually, only then, can he login to his/her application account. The Collage Management android operating system based application developed as part of this project has successfully achieved its objectives of providing a user-friendly and efficient learning management system. Through the integration of Android SDK and Java servlet MongoDB, the application offers a comprehensive platform for College Management. The literature review highlighted the importance of College Management and the significant benefits it brings, including flexibility, accessibility, personalized learning, and improved engagement. The project's feasibility study confirmed the practicality and viability of implementing the College Management android operating system based application, considering technical, economic, operational, and schedule-related aspects.

Throughout the project, a systematic methodology was followed, starting from system analysis and requirements gathering, technology selection, system design, implementation, testing, and deployment. The use of Java J2EE powerful web framework and MongoDB lightweight database enabled efficient development, data storage, and retrieval. The user registration, login, and password management functionalities provide a secure and seamless user experience. Robust security measures were implemented to protect user information, including encryption, secure authentication, and role-based access control

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