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Design and Implementation of a Smart Notice Board Using Mobile Application with Other Features

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Abstract: *In today's digital era, information management and communication have become vital components of the education system. Colleges and institutions generate and distribute large volumes of data daily, including notices, schedules, attendance records, examinations, and academic results. Traditional notice boards, while widely used, are limited by their dependence on manual updates, consumption of paper and labor, and inability to deliver information promptly to all students. To overcome these challenges, this project introduces the Smart Notice Board with Application, designed specifically for Android devices.*

The system provides two distinct dashboards tailored to the needs of teachers and students. Through the teacher's dashboard, educators can efficiently manage academic tasks such as recording attendance, conducting online examinations, uploading marks, and publishing notices or announcements directly through the application. On the other hand, the student dashboard offers real-time access to all relevant information, enabling learners to view attendance records, exam schedules, marks, assignments, and institutional notices instantly.

The design emphasizes user-friendly navigation, secure data handling, and scalability to support institutions managing large amounts of information. Implementation involves a robust backend architecture synchronized with mobile devices, ensuring seamless communication between administrators and students. By integrating multiple academic features into a single platform, the Smart Notice Board enhances transparency, reduces delays, and fosters a more connected and efficient learning environment. Ultimately, this innovation contributes to the vision of smart campuses, where technology is leveraged to streamline processes, improve engagement, and modernize traditional communication practices.

Keywords: Design and implementation of a smart notice board using mobile application with other features

I. INTRODUCTION

In the contemporary academic landscape, the flow of information between students, teachers, and institutions has become increasingly complex and demanding. Colleges and universities generate vast amounts of data daily, including notices, attendance records, examination schedules, results, and assignments. Managing and delivering this information through traditional notice boards and manual communication methods often proves inefficient, time-consuming, and susceptible to delays or loss of data. Such limitations highlight the need for a more reliable, accessible, and technology-driven solution. This project, titled "Smart Notice Board Application", addresses these challenges by designing and implementing a mobile-based platform tailored for Android devices. The system consolidates multiple academic functions into a single application, offering features such as attendance management, online test conduction, assignment submission, notice board updates, and student profile management. To ensure efficiency, the application provides two distinct dashboards: one for teachers to manage academic tasks and publish announcements, and another

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for students to access information instantly in real time.The Smart Notice Board Application not only reduces dependency on paper and manual processes but also enhances transparency, accessibility, and communication within the institution. By integrating academic management tools with digital notice board functionality, the project contributes to the vision of smart campuses, where technology is leveraged to streamline operations, improve engagement, and create a more connected educational ecosystem.

II. LITERATURE SURVEY:

1. TANG Yu- fang'ZHANG Yong- sheng. Design and perpetration of College Student Information Management System Grounded on Web Services. The work done in the below paper reaches into planting a The SIMS is developed by the design of database SIMS.mdf and the consummation of each module's function. Through this system, scholars can get particular information into the database of council pupil information operation system which is Real- Time, accurate real- and interrogate particular information timely and fluently. therefore, it reduces information input workload of council directors, and enables them to concentrate on managing that information. It also realizes the robotization of information operation for council pupil, and encourage the operation of council scholars to carry out high efficiently. In this paper this system have seven function modules similar as the scholars information operation module, score operation module, the award operation module, the discipline operation module, the social practice module, the subsidization operation module and the stoner honor operation module, through the B/ S mode(similar as Web cybersurfer) etc.

2. Pooja S. Sharma Reshma R. Shetty Gayatri V. Yadkikar Prof. Dhanashri Kanade, College robotization System- IJIRST This paper describes system of developing council robotization System which will manage the working of council operation exertion using single platform. This system has easy interface and strong data operation. They've used bootstrap which increases the responsiveness of the system. The ideal of this system is to reduce the paperwork and primer processing. The end of this System is to reduce the workload and to save significant staff time. In their System give the automate admissions no primer processing is needed. This paper describes automating the being primer system. This is a paperless work. It can be covered and controlled ever. It reduces the man power needed. It provides accurate information this gathered information can be saved and can be penetrated at any time. The data which is stored in their depository Helps in taking opinions by the operation furnishing the accurate results. The storehouse installation will relieve the job of the driver. therefore the system developed will be helpful to the director by easing task furnishing the accurate result.

3. Suman Chatterjee, Manish Kumar Thakur Smart Collage Management System – IJERT This design is android grounded design will do the task through the operation. It'll decries the paper work. The admin, faculty or the pupil will perform all the task veritably efficiently and further accessibly. The operation offers ease, security, time savings and easy control.. It can be used as a base for creating and enforcing operations for viewing results, tracking attendance for sodalities. scholars and their parents will also view test marks, attendance and class details using this operation. Also scholars can view details, marks, and announcements anywhere and anytime. Their operation will readily to use and it speed up the result medication and operation process. The proposed system will drop the work time of the admin as well as the faculty. This is further perfection to the work. 2.5 CAI Chang- an, WANG Qi Design and perpetration of pupil information operation system grounded on B/ S model- IEEE This paper refers ASP- grounded web operation and active website technology, which are developed by Microsoft Company, It makes web operation simple and briskly. The design and perpetration of pupil information operation system grounded on B/ S model is introduced compactly, including system demand analysis, database design, system function and enforcing technology. crucial technology similar as ASP technology and network security technology are anatomized. The practice show that the software has similar characteristics as friend prolusion and flexible operation.

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3. Block Diagram:

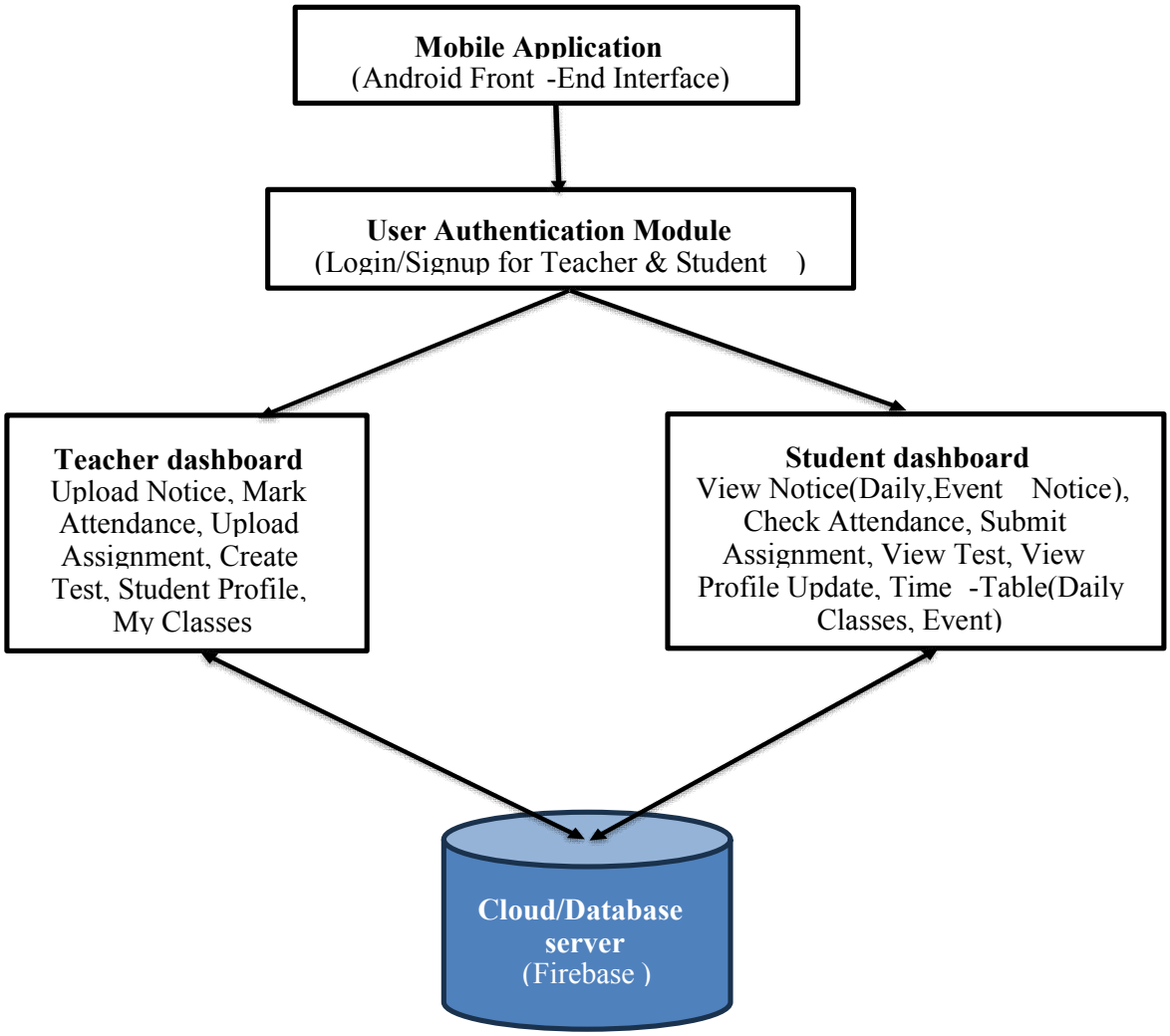

Fig 1. Block Diagram of Interaction Between Student And Teacher.

Description:

The block diagram represents a mobile-based educational management system that facilitates structured interaction between teachers and students. The system is anchored on an Android front-end interface, supported by Firebase as the cloud/database server to ensure secure storage and real-time synchronization of data.

A user authentication module governs access, allowing both teachers and students to log in or sign up securely. Once authenticated, users are directed to role-specific dashboards:

Teacher Dashboard: Provides functionalities such as uploading notices, marking attendance, assigning homework, creating tests, managing student profiles, and organizing classes.

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Student Dashboard: Enables learners to view notices (daily or event-based), check attendance records, submit assignments, access tests, update personal profiles, and consult timetables for daily classes or events.

4. Data Flow Diagram:

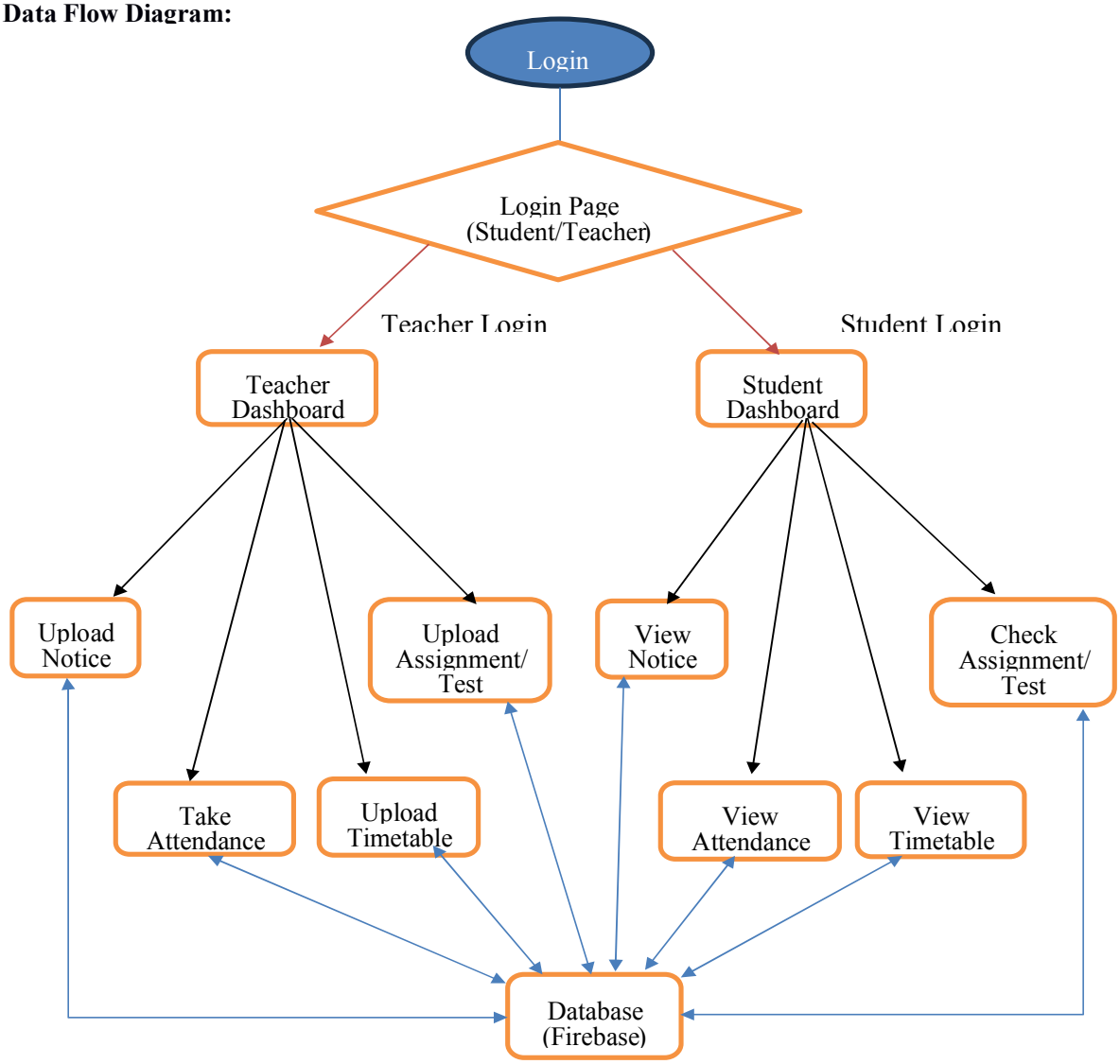

Fig 2. Flow Diagram of Interaction Between Student and Teacher.

Description:

The data flow diagram represents how teachers, students, and the system database interact within a smart academic management platform. It begins with a secure login process where both teachers and students authenticate themselves to access their respective dashboards. From the teacher's dashboard, functions such as uploading notices, assignments or tests, taking attendance, and uploading timetables are available. On the student's side, the dashboard allows viewing notices, checking assignments or tests, monitoring attendance records, and accessing timetables. All these activities are connected to a centralized Firebase database, which acts as the backbone of the system by storing and synchronizing

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information in real time. This structure highlights role-based access control, where teachers primarily serve as data providers and students as data consumers. By digitizing traditional academic processes like notice boards, attendance registers, and timetables, the system ensures efficiency, scalability, and modernization, making it a unique solution tailored for contemporary educational environments.

a. System Specifications:

- **Platform**
- Mobile Application built on Android front-end interface.
- Designed for portability and accessibility across student and teacher devices.
- **Authentication**
- User Authentication Module for secure login and signup.
- Role-based access control (separate dashboards for teachers and students).
- Ensures privacy and data protection.
- **Teacher Dashboard Features**
- Upload notices (daily or event-based).
- Mark student attendance.
- Upload assignments.
- Create and manage tests.
- Access and update student profiles.
- Manage classes and schedules.
- **Student Dashboard Features**
- View notices (daily updates and event announcements).
- Check personal attendance records.
- Submit assignments digitally.
- Access and attempt tests.
- Update personal profile information.
- View timetable (daily classes and events).
- **Database & Cloud Integration**
- Firebase Cloud/Database Server used for:
- Real-time synchronization of data.
- Secure storage of user information, assignments, attendance, and notices.
- Scalability to handle multiple users simultaneously.
- **Interaction Model**
- Two-way communication:
- Teachers → provide academic resources, notices, and evaluations.
- Students → access information, submit work, and track progress.
- Ensures seamless collaboration between teacher and student communities.

b. Hardware Requirements:

- Mobile : It is used for Operate the application . (as a testing device)
- Laptop / PC : It is used for development the application .(for IDE android studio).

c. Software Requirement :

- Android Studio: It is IDE for development the structure and Designing of Application .
- Emulator: It is a virtual mobile phone for testing the designing of application.
- Database: Firebase database is used in this application.

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- Programming Language: XML(For UI Design)HTML, CSS, JavaScript , Kotlin.

V. RESULTS AND DISCUSSION:

The developed design and implementation of a smart notice board using mobile application with other feature's was successfully implemented and tested.

Fig 3. Login Interface for the PDDVP Academic Management System.

Description:

The login page of the PDVVP Academic Management System is designed to provide a simple and secure entry point for both students and teachers. At the top, the interface displays a circular icon with a graduation cap, symbolizing education, followed by the system title. Users are first prompted to select their role, either Student or Teacher, ensuring that they are directed to the appropriate dashboard after authentication. The credential fields differ based on the role chosen: students log in using their PRN number and date of birth, while teachers use their email address and password. A prominent blue "Login" button is placed at the bottom to initiate access once credentials are entered. For teachers, an additional option to register is available, while students rely on institutional credentials for access. The overall design is minimalist, with clear icons and structured input fields, making it user-friendly and efficient. This role-based authentication not only enhances security but also ensures that each user experiences a tailored interface aligned with their academic responsibilities.

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Fig. 4. Teacher Dashboard Of PDVVP Academic Management System.

Description:

After login, the Teacher Dashboard of the PDVVP Academic Management System presents a structured interface that organizes all essential academic and administrative functions into clearly defined modules. The dashboard is designed with a grid layout, where each section is represented by a card containing an icon, a title, and a short description of its purpose. Teachers can access My Classes to view and manage scheduled sessions, while the Students module provides details about student performance and contact information. The Attendance section allows teachers to mark daily attendance and track student presence efficiently. Through the Assignments module, teachers can create, distribute, and review student submissions. The Exams and Question Paper sections support scheduling exams, uploading question papers, and managing assessments. Additionally, the TimeTable module helps teachers access and update their weekly teaching schedules, and the Notices section enables posting important announcements for students.

Overall, the Teacher Dashboard offers a comprehensive, role-specific workspace that simplifies classroom management, enhances communication, and ensures that academic tasks are centralized in one accessible platform. It reflects a userfriendly design that balances functionality with ease of navigation, making it an effective tool for modern educational administration.

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Fig. 5. Student Dashboard Of PDVVP Academic Management System.

Description:

The Student Dashboard of the PDVVP Academic Management System provides a comprehensive interface tailored to the needs of learners, organizing academic and extracurricular activities into distinct modules. After login, students are presented with a grid layout where each section is represented by a card with an icon, title, and description. The Attendance module allows students to track their presence by subject or day, while the Aptitude and Competitive sections focus on skill-building and preparation for competitive examinations. The Tests module provides access to internal assessments and question papers, and the Assignments section enables students to receive, complete, and submit coursework digitally.

Beyond academics, the dashboard also integrates event-related features: Event Notice informs students about upcoming academic or extracurricular activities, and Event Attendance records their participation. The Student Profile module centralizes personal and academic information, while the Time-table section helps learners manage their daily and weekly schedules.

Overall, the Student Dashboard is designed to be student-centric, interactive, and efficient, offering a unified platform where learners can monitor their academic progress, prepare for exams, engage in events, and manage their schedules seamlessly. It reflects a modern approach to academic management, emphasizing accessibility, organization, and active participation.

VI. CONCLUSION AND FUTURE SCOPE

The design and implementation of a Smart Notice Board integrated with a mobile application goes beyond traditional communication by offering a complete academic management solution. Alongside instant and secure notice delivery, the system incorporates essential features such as attendance tracking, test scheduling, marks distribution, and assignment updates. This holistic approach ensures that students and staff have 24/7 access to both administrative and academic information in one centralized platform. By reducing paper usage, preventing tampering, and simplifying

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administrative tasks, the solution supports eco-friendly practices while enhancing transparency and efficiency. Ultimately, this smart system not only modernizes institutional communication but also strengthens academic engagement, making it a scalable and future-ready tool for educational environments.

- Admin panel for analytics and performance tracking.
- Integration with LMS (Learning Management Systems).
- Support for video conferencing and online lectures.
- Grade book and report card generation.

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AUTHORS' PROFILES

Prof. Amol M. Landge is currently working as Professor in the Department of Electronics & Telecommunication engineering , Dr.Vitthalrao Vikhe Patil College of Engineering , Ahilyanagar, Savitribai Phule Pune University , Maharashtra ,India from July 2009. He received B.E in Electronics Engineering from University of Pune in 2007, M.E. (VLSI & Embedded System) from Savitribai Phule Pune University in 2014,.So far, he guided several undergraduate projects . His research interests include Embedded system & VLSI.

Siddharth A. Pawar is currently pursuing a Bachelor of Engineering at Vitthalroa Vikhe Patil College Of Engineering, Ahilyanagar Electronics and Telecommunication Engineering in Maharashtra, India. His academic interests include the IT Field,Internet of Things (IoT), Web Application & Mobile App Development. Their academic journey has been characterized by a consistent interest in designing and implementing scalable, secure, and innovative digital solutions that address contemporary challenges in education and technology. He has worked on practical projects such as an AI Assistant For Home Automation Using Ardunio , through which he has gained hands-on experience in AI Tools , s system automation, and real-time monitoring applications.

Tushar A. Gavali is currently pursuing a Bachelor of Engineering in Electronics and Telecommunication at Dr. Vitthalrao Vikhe Patil College of Engineering, Ahilyanagar. He has a strong interest in the IT field, particularly in coding and data science. He is passionate about data handling and aims to build intelligent systems that efficiently manage and analyze data.Through his work on a Smart Notice Board project integrated with an Android application, he has gained practical experience in developing real-time systems for college use. His project involved the use of Kotlin and Firebase for database management, enhancing his skills in application

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development, data integration, and system design. His hands-on experience has strengthened his problem-solving abilities and technical knowledge.

Tejas M. Walke is a Bachelor of Engineering student in Electronics and Telecommunication at Dr. Vitthalrao Vikhe Patil College of Engineering, Ahilyanagar. He is interested in computer vision, coding, and data science, with a passion for building intelligent systems that analyze and interpret data. Along with this, he has a strong foundation in coding and data-driven problem solving. He has hands-on experience developing a Smart Notice Board Android application using Kotlin and Firebase, strengthening his skills in real-time systems and problem-solving. This experience helped him understand real-world application development and system integration.