

Centralized Club Management System for RIT College

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Abstract: *Student clubs play an important role in overall development of student in a collage. They help students to improve their technical skills, leadership ability, teamwork and creativity through different activities such as workshops, competitions and events. However, in many collages the management of club activities is not organized properly. Information about event is often shared through different platform like notice boards, social media or messaging groups, which makes it difficult for students to stay updated. The Centralized Club Management System is designed to solve these problems by providing a single digital platform to manage all club activities in the collage. The system allows student to explore different clubs, join them and register for events easily. Club leader can create events, manage members and post announcements while faculty coordinators can monitor club activities and verify reports. This system also helps the collage administration maintain proper records of clubs, events and student participation. By centralizing all information in one place the platform improves communication between students, club leader and faculty members. The main goal of this project is to simplify the management of student clubs, increase student participation in activities and ensure that all club related information is easily accessible. The system makes the entire process more organized, transparent and efficient for every involved.*

Keywords: Centralized club management; Student clubs; Event management system; Notification and announcements; Student participation

I. INTRODUCTION

Student clubs play an important role in collage life because they help students develop leadership teamwork and technical skills through different activities such as workshops, competitions and seminars. However, in many colleges, the management of club activities is not well organized. Information about events is often shared through notice board, social media groups or messaging platforms which can cause students to miss important updates and announcements [1].

With the growth of mobile technology, Android applications have become a useful solution for managing campus services. A mobile-based system allows students to easily access information about clubs, register for events and receive notifications directly on their smartphones. Such system can improve communication between students, club leaders and faculty coordinators while also reducing manual work [2].

The Centralized Club Management System for Collage aims to provide a single platform to message all students club and their activities. The application allows students to explore clubs, join them and register for events through an Android-based interface. Clubs leaders and administrators can also manage members, post announcements and track participation more efficiently [3].

The system is developed using Android Studio, with Firebase used for data storage and user authentication. In addition, XAMPP is used during development to manage backend services and database testing. By integrating these



technologies, the system helps simplify club management and improve student participation in extracurricular activities [4].

The original contributions of this paper are the following:

- Development of an Android-based application for centralized management of student clubs.
- Integration of Firebase for real-time database, authentication, and notifications.
- Implementation of club and event management features for students and coordinators.
- Use of XAMPP (Apache and MySQL) for backend testing and database management.

The Centralized Club Management System includes: student management, club coordinator management, event creation and registration, club membership tracking, announcement posting, notification management, event participation record updating and automated report generation. The system is used to support club activities within a college and is designed architecturally to support the deployment of multiple clubs and departmental organizations. The Android application [3], developed using Android Studio, is aimed at student and coordinator level data entry and activity management. The software architecture, module design and implementation details, and a comparison of the system with the manual workflows used earlier for managing club activities are the main subjects of this paper.

II. LITERATURE REVIEW

The adoption of mobile technologies in educational institutions has significantly improved the management of academic and extracurricular activities. Several studies have proposed mobile-based systems that support communication between students, faculty, and administrators through centralized platforms. A mobile student club management system was developed to simplify the process of managing student clubs, membership records, and activity updates through digital platforms. Such systems help reduce manual work and improve accessibility of information for students and administrators [1].

Android-based event and student management applications have also been widely explored in previous research. These systems enable students to access event information, register for activities, and receive notifications through mobile devices. The implementation of such systems has been shown to enhance communication within educational institutions and streamline event coordination processes [2], [9], [23], [24]. Similarly, research on Android-based campus solutions and mobile applications for college management demonstrates that mobile platforms provide efficient tools for managing institutional activities and student services [10], [11], [18].

Several researchers have focused on developing Android applications specifically for event management and student participation. These systems provide features such as event scheduling, participation tracking, and communication tools that help improve coordination among students and faculty members. The use of Android technology enables institutions to deliver user-friendly applications that can be easily accessed through smartphones, improving overall engagement in campus activities [4], [12], [20].

Cloud-based technologies have also played an important role in modern mobile application development. Backend platforms such as Firebase provide real-time databases, authentication services, and cloud storage that simplify the development process and enable efficient data synchronization between multiple users. Mobile applications developed using Android Studio can integrate Firebase services to manage event data, membership information, and notifications in real time [3], [5], [6], [14], [25]. These cloud-based solutions reduce the need for complex server management and improve system scalability.

In addition to event and club management systems, researchers have also developed Android applications for educational management tasks such as attendance monitoring, department activity management, and mobile learning platforms. These systems demonstrate the potential of mobile technology to support various academic and administrative processes within educational institutions [13], [15], [16], [17], [19], [21], [22].

From the reviewed literature, it can be observed that mobile applications have significantly improved the management of campus activities and academic services. However, many existing systems focus only on individual functionalities such as event management, attendance monitoring, or department activities. Therefore, the proposed Centralized Club



Management System for Rajaram Institute of Technology aims to integrate club management, event coordination, membership handling, and notification services into a single Android application platform. By providing a unified system, the proposed application will simplify communication and improve the overall management of club activities within the college environment [7], [8].

III. SYSTEM ARCHITECTURE

The Centralized Club Management System is based on a cloud-based architecture where the Android client application communicates directly with Firebase services for authentication, database storage, and notification management. The mobile application developed using Android Studio allows students, coordinators, and administrators to access and manage club activities through a single platform. This Backend-as-a-Service (BaaS) architecture [4] removes the need for a dedicated server application and reduces system complexity while utilizing scalable cloud infrastructure. The overall technology stack and system interaction are summarized in Fig. 1.



FIG. 1. System Architecture of the Centralized Club Management System

The system architecture is organized into three primary modules: Admin, Club Coordinator, and Student. The Admin module manages the overall system by creating clubs, approving membership requests, and monitoring club activities. The Club Coordinator module allows coordinators to manage club details, organize events, and track student participation. The Student module enables users to explore available clubs, join or leave clubs, and register for upcoming events. All modules interact with the centralized database to ensure real-time updates and efficient information sharing between users. This modular architecture improves system scalability and ensures smooth management of club activities across the institution.

IV. USER INTERFACE

A. Login and Role Selection

The application begins with a welcome screen where users can select their role, such as Student Portal, Club Admin, or Campus Admin, as shown in Fig. 2. This role-based access control ensures that each user is directed to the appropriate module according to their responsibilities in the system. Similar role-based authentication mechanisms have been



implemented in several Android-based campus and event management systems to maintain system security and organized user access [1], [2], [10].

After selecting a role, users are redirected to the authentication interface where login credentials are required to access the application. The student login interface requires Roll Number and Password for authentication, as illustrated in Fig. 3. Similarly, Club Admin and Campus Admin users log in using their respective usernames and passwords. Such authentication mechanisms are widely used in Android-based educational management applications to prevent unauthorized access to system resources [3], [11].

The Android user interface is developed using XML layouts in Android Studio, which provides a clean layout structure, responsive design, and smooth navigation between screens. Android development frameworks and documentation provided by Google support the creation of efficient mobile user interfaces for campus applications [5].

TABLE 1. Firestore Collection Schema for Centralized Club Management System

Module	Attributes
Student	Roll Number (PK), password
Club	Club Name, Description, Club Image
Club Registration	Roll Number (PK), Full Name, Email, Selected Club
Event	Event Title, date, time, location, description, organizer, Contact
Event Participation	Full Name, Email
Club Admin	Username, Password
Campus Admin	Administrative Username, Password

B. Student Interface

After successful login, students are redirected to the student dashboard where they can explore various clubs available within the institution. The dashboard provides a user-friendly interface displaying featured clubs, club descriptions, and available activities. Similar student-centered interfaces are commonly used in mobile campus management applications to simplify student interaction with institutional services [8], [15].

The system allows students to register for clubs by submitting details such as full name, roll number, email, and selected club. Once registered, the student can view their registered clubs through the “My Registered Clubs” section. This type of membership management system is widely adopted in Android-based club and campus management applications to improve student engagement and participation [1], [23].

The interface also provides access to upcoming events, where students can view event details such as title, date, time, location, and organizer information. Students can apply for events directly through the application by filling out a participation form. Event-based interaction systems are an important component of digital campus platforms that support student activity management and event coordination [9], [20].

C. Club Administrator Interface

The Club Admin module is designed for club coordinators who are responsible for managing club activities and organizing events. Through this interface, administrators can add new events, update event details, and monitor event registrations submitted by students. Similar administrative management modules have been proposed in Android-based event management systems to streamline the coordination of club activities [4], [12].

D. Campus Administrator Interface

The Campus Admin module provides centralized control over all clubs within the institution. Campus administrators have the authority to create new clubs, update club information, and manage existing club records. Centralized administrative dashboards are commonly used in campus management systems to ensure structured control and monitoring of institutional activities [10], [18].



Through this interface, administrators can monitor the functioning of multiple clubs and maintain the overall organizational structure of student activities within the institution. Such centralized management systems help improve transparency and simplify the coordination of campus-level events and operations [19], [21].

E. Event and Participation Interface

The event management interface allows users to view detailed information about upcoming events organized by different clubs. Each event contains details such as event title, date, time, location, description, and organizer contact information.

Mobile event management systems enable efficient communication between organizers and participants while simplifying the event registration process [3], [20].

Students can apply for events through the application by submitting their details through a participation form. Once registered, the event data is stored in the system database, allowing administrators to track participation and manage event records efficiently. Modern mobile campus applications commonly integrate cloud databases such as Firebase to store event and participation data in real time [6], [25].

V. SYSTEM MODULES

A. Student Management

The Student Management module allows students to access the system using their roll number and password for authentication. After successful login, students can view available clubs, explore club information, and participate in various activities organized within the institution. The system stores student details such as roll number, full name, email address, and selected club in the database. Proper input validation ensures that the information entered by students is accurate and complete. Such student management systems are widely used in mobile campus applications to improve the organization of student activities and digital participation within educational institutions [1], [10].

B. Club Management

The Club Management module enables administrators to create, update, and manage different clubs available in the institution. Each club contains information such as club name, description, and club image, which helps students easily identify and explore various clubs. Administrators can update club information whenever necessary and maintain an organized database of all institutional clubs. This centralized approach improves accessibility and allows students to easily discover extracurricular activities available on campus. Similar club management systems have been implemented in Android-based campus applications to support efficient organization of student clubs and activities [2], [23].

C. Event Management

The Event Management module allows administrators and club coordinators to create and manage events organized by various clubs. Each event includes details such as event title, date, time, location, description, organizer name, and contact information. Students can browse the list of upcoming events through the application interface and obtain important information about event schedules and participation requirements. Event data is stored in the system database and can be updated by administrators when necessary. Mobile-based event management systems are widely used in educational institutions to simplify the process of organizing and managing events [9], [20].

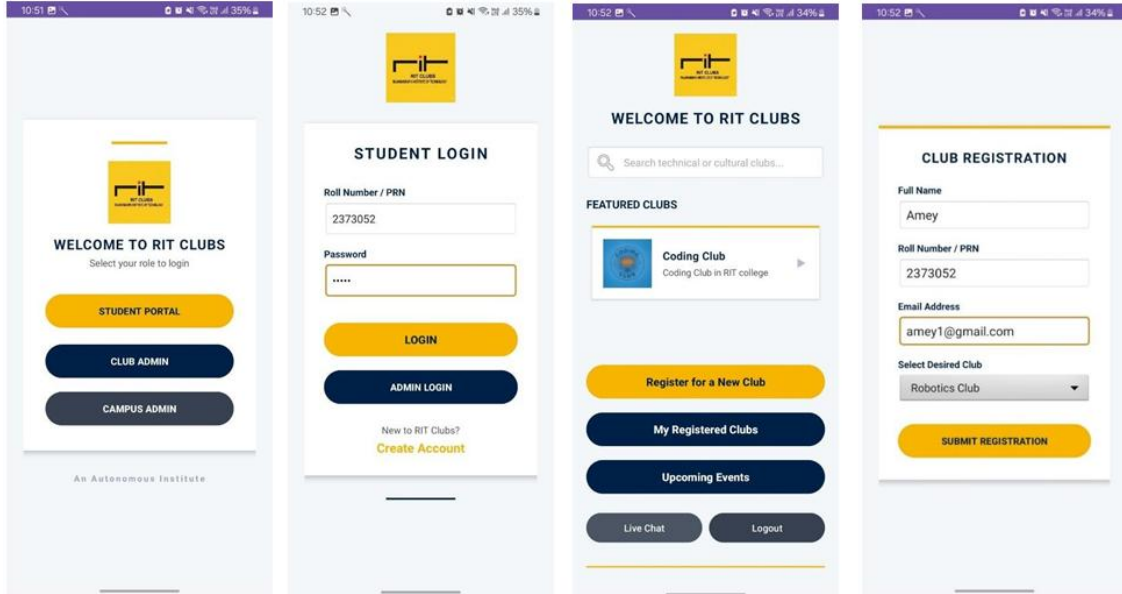
D. Event Participation Management

The Event Participation module enables students to register for events directly through the application. Students can submit their name and email address to confirm their participation in a particular event. Once the registration is completed, the participation data is stored in the database and can be accessed by administrators to monitor event attendance and maintain records of student involvement. Cloud-based database services such as Firebase provide real-



time data synchronization and secure storage, allowing administrators to instantly access updated participation records across devices [3], [6], [25].

VII. RESULTS

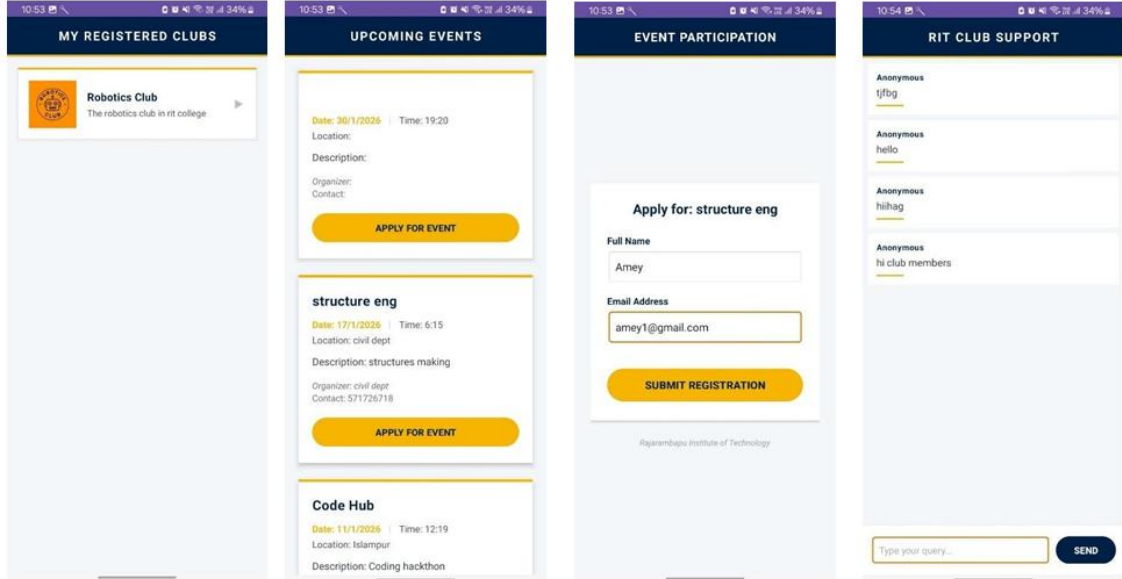


1. Roll Selection Page

2. Login Page

3. Home Page

4. Club Registration Page



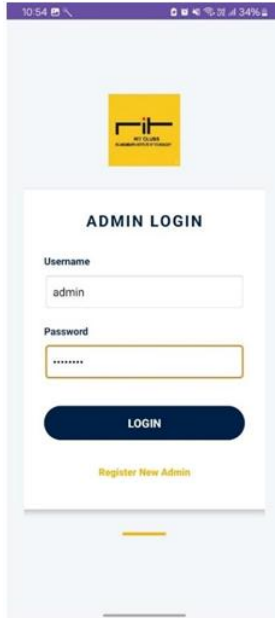
5. Register Club Page

6. Event Page

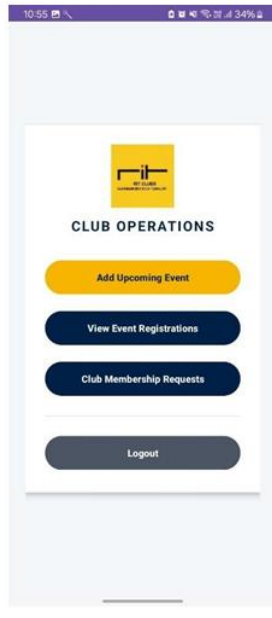
7. Event Participation Page

8. Club Chat

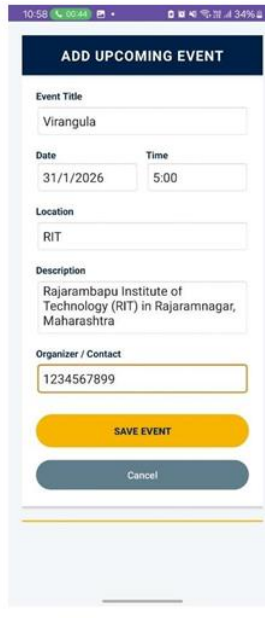




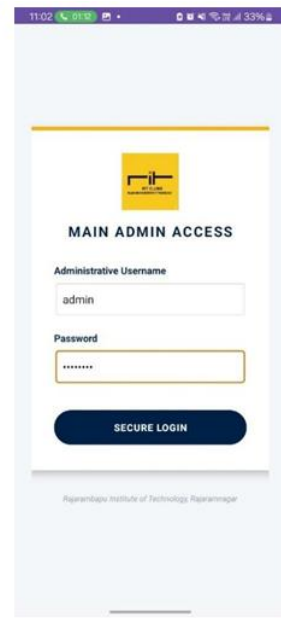
9. Admin Login Page



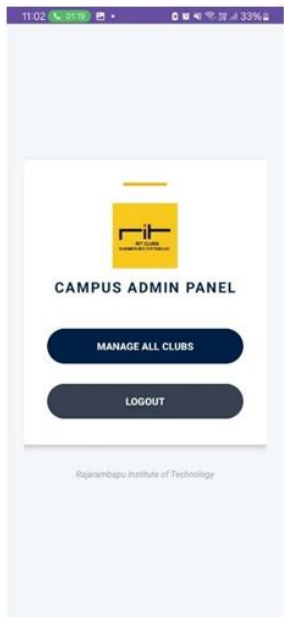
10. Admin Home Page



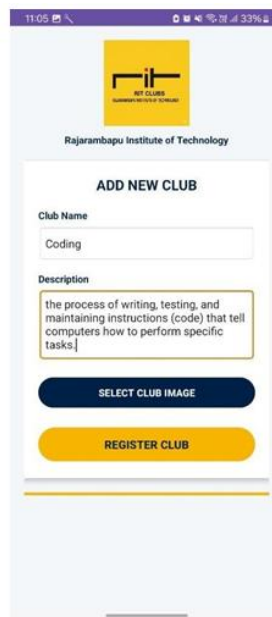
11. Add Event Page



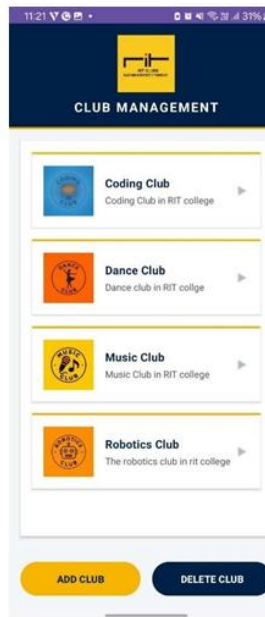
12. Main Admin Login



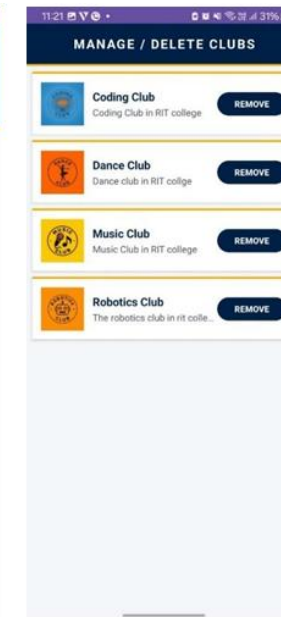
13. Main Admin



14. Add Club Page



15. Club Page



16. Delete Club Page Home Page

VIII. CONCLUSION AND FUTURE WORK

The Centralized Club Management System developed for Rajaram Institute of Technology provides a digital platform for managing various student clubs and their activities through a single mobile application. The system simplifies the process of club registration, event management, and student participation by integrating different user roles such as students, club administrators, and campus administrators. Through the Android-based application developed using XML layouts and Java programming, users can easily access club information, register for events, and manage club



activities efficiently. The system improves communication between students and club coordinators while reducing manual record keeping and administrative workload. Similar Android-based campus management solutions have demonstrated that centralized platforms can significantly enhance the organization and accessibility of student activities within educational institutions [1], [3], [9].

In the future, several enhancements can be implemented to further improve the functionality and scalability of the system. Additional features such as push notifications for event updates, advanced search and filtering options for clubs, and improved role-based security mechanisms can be integrated into the application. The system can also be expanded to support offline data synchronization and integration with additional institutional services. Furthermore, deploying the application on official distribution platforms and optimizing the backend service infrastructure will improve reliability and allow the system to support a larger number of users and events across the campus environment.

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