

Simple Touch Firebase Powered Android Application for College Events Management

Sharat S. Koliwad¹, Lekha A.^{2,*}

Abstract

The “Simple Touch” is an innovative mobile application, that simplifies event management and overcoming several common challenges that happen within college student clubs. Its main purpose is to simplify event planning, event promotion, and event coordination without the many useless paper processes, besides leading to more effective real-time communication due to mobile notifications. This event posting and joining with the notification app will enable users to access events with much ease. The targeting of this Android application is for all Android devices, and it was developed using Android Studio, powered by Firebase. “Simple Touch” provides an intuitive user experience through an interface that personalizes event recommendations based on user interests and preferences. The application helps get rid of manual data management, eliminates errors, and increases event participation by offering a centralized platform where events can be organized and administrative tasks automated, with integrated social media sharing for events. Though the present scope of the application is only Android, the merits of the application include increased productivity, ease in event management, and timely notifications, thus ensuring the facilitation and management of events on time, both for the organizers and the participants. Simple Touch” reinvents event management in college communities through an easy-to-use interface with extensive backend support for holistic, flexible solutions to meet the dynamic needs of student clubs.

Keywords: Firebase, Android, Java, Application, notification, college, events, management, mobile

INTRODUCTION

One major achievement is the mobile application “Simple Touch,” which revolutionizes event management for college student clubs. The purpose of the application is to solve the problem of challenging student organizers by helping them organize and advertise events much more easily with the help of mobile touch.

The “Simple Touch” was almost entirely developed using Android Studio, which is why it is intended for Android devices. The power of Firebase lies with the backend infrastructure of the application. This application has an ingenious user interface (UI). Simultaneously, when the user first launches the application, it suggests setting up a profile with the contact information, preferences, and location. This makes the user’s experience more personal and straightforward for the software to offer events tailored to the interests of each user.

*Author for Correspondence

Lekha A.
E-mail: lekha@pes.edu

¹Student, Department of Computer Applications, PES University, Bengaluru, Karnataka, India

²Associate Professor, Department of Computer Applications, PES University, Bengaluru, Karnataka, India

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Although events are becoming increasingly important in college communities, there are still a number of obstacles that student organizers must overcome. Effective event promotion is difficult,

particularly for intra-college get-togethers. Furthermore, manual data management procedures are prone to mistakes and inefficiency. Examples of these procedures include participant registration and record-keeping utilizing basic technologies such as Excel sheets. Furthermore, activities such as certificate distribution become more difficult in the absence of a centralized platform for maintaining event records, which can cause delays and inconsistencies. Educational and extracurricular activities. Ensuring that students are aware of college events allows them to never miss opportunities to represent themselves, and school events will be quite active.

Android is currently the most widely used application platform worldwide. Essentially, every major company is developing apps for the Google Play Store to better manage its resources and people. An Android application is useful for most college students. It can not only bring a larger number of receivers of the message but can also reveal the exact number of recipients. It can be beneficial to obtain an estimated figure of the number of attendees at events. However, the currently available applications have a limited functional range, misleading UI, and poor design. Students can obtain more freedom from their colleges with good applications.

To alleviate these problems, “Simple Touch” provides a comprehensive event management solution. The core functionality of this solution revolves around simplifying the participant registration process, event advertising, and data management. Student clubs may concentrate on providing their members with unforgettable experiences by using the application to centralize event information and streamline administrative responsibilities. Its smooth interaction with social media platforms also makes it easier to reach a wider audience for an event, and its automated data tracking guarantees accurate and effective participant management.

Origin of the Problem

The “Simple Touch” mobile application project aims to reduce the common problems college event communities and related organizations face when trying to efficiently plan and advertise their events. Simple Touch seeks to improve productivity by streamlining procedures and solving problems, including manual data administration, event promotion, and the lack of a centralized platform for keeping event records. The application aims to save human labor and minimize errors by automating event management duties, which, in turn, improves overall efficiency. It is crucial to remember that a project's scope is constrained in some ways.

The application was primarily created for Android devices, and it did not provide support for other operating systems. Furthermore, even though event management and promotion solutions are given priority, the project may not include all capabilities that fall outside of this specified scope. However, Simple Touch seeks to provide an all-inclusive and easily navigable solution within its specified limitations, to address the unique requirements of college event communities and related institutions. If a mobile application enables users to receive notifications when administrators/employees publish events, everyone can receive this information automatically without having to forward it, and nobody will overlook it.

RELATED WORK

Evecurate is a modern mobile application designed specifically for higher education institutions that solve issues using conventional event management techniques [1]. The app simplifies event planning with a focus on efficiency, paperwork, and labor. It functions as a strong support system for event registration, interaction, and streamlining procedures for hosts and guests. It has been tested for consistent performance across various devices.

The goal of providing specialized and superior event management services is outlined in [2]. This study focuses on using an Android application that allows users to personalize events and effectively oversee all stages of event administration. The proposed system includes modules for messaging,

booking and payment, review and rating, and booking. The UI is responsive and interactive, enabling quick and easy operation.

Software streamlines event planning, location searches, and publicizing to increase efficiency [3]. However, issues with the scalability of the backend SQL database are raised. The initiative was to empower college event organizers, giving them the ability to disseminate event information and encourage student engagement and participation, with an emphasis on educational, medical, and social programs.

The existing system lacks a centralized platform for instantly notifying instructors and students about events [4]. Using Flutter, the application adds features, such as electronic noticeboards, bookmarks, and urgent alarm systems. By serving as a primary hub for all event alerts, including website updates and physical notice boards, the app aims to significantly impact students. This can be accomplished by encouraging greater event participation, increasing awareness, and ensuring timely information.

Reference highlighted the significance of independent event planners and underscored the challenges they encounter [5]. An Android smartphone application was created to assist people in planning successful events. The program functions as an all-in-one solution with different planning categories, providing a hassle-free experience for customers to effectively organize events in the middle of the industry's rapid growth.

METHODOLOGY SYSTEM ARCHITECTURE DIAGRAM

Presentation layer: The presentation layer, also known as the UI, is the uppermost layer. This is what the user deals with face-to-face. It can have components such as menus, text fields, buttons, and pictures. The “User Interface” displayed in the image includes the features “Update Profile,” “Post Events,” “Register for Events,” and “User Certificates.”

Business layer: The business layer is positioned between the service and presentation layers. It considers the application's business logic, which includes handling data flow and calculating and validating user input. It belongs to the “Business Layer” in the picture.

Service layer: This layer provides services to the business layer and communicates with the data layer. It might involve communicating with external systems, accessing data, and performing complex computations. It has elements like “User” and “Fire Base” and is designated “Service Layer” in the picture.

Database: This layer uses a database to store and retrieve the data. This may include relational databases, NoSQL databases, and various other data-storage systems. It has the element “Fire Base” and is known as the “Data Layer” in Figure 1.

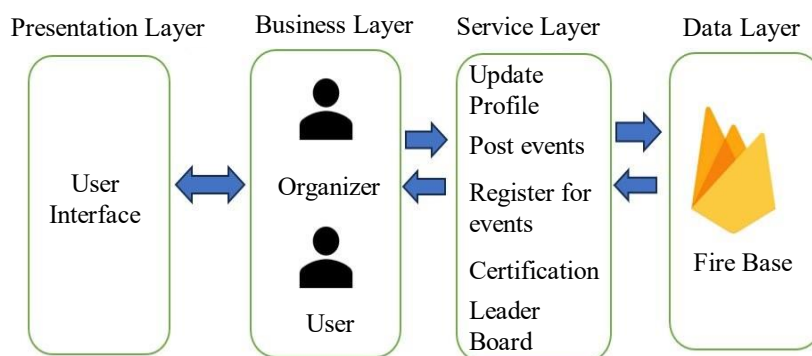


Figure 1. System architecture diagram.

Login and Dashboard

All users of this application, including students and members of campus clubs, can access information about all scheduled events at the college through the home tab. Any user has access to comprehensive details regarding any event posted on our app [6]. Coordinators are the only ones with the ability to add events to the application and edit previously posted events. All users, other than coordinators, have limited access to the event details.

Adding New Events

Authorized organizers or students can post new events in their applications. Creating a new event necessitates a title, description, and event category, along with the name and contact information of the hosting committee, as well as an image or poster for the event.

Notification

The notification system can be used by the organizer to deliver an important message after an event has been posted. To send a notification, all they must do is input the notification's head and body components and press the send button. Students who have the installed application will then receive a notification.

Main Interface

The primary interface includes a bottom navigation bar that provides access to key features of the application. Events posted by the organizer are visible on the app's main page. Users can click on the event poster to see the details and share the event on social media.

Security and Privacy

Firebase authentication and permission are used in the proposed system to safeguard user data. Users are granted varying access permissions based on Firebase security policies. This offers a means to regulate each user's access.

SYSTEM ADVANTAGES AND DISADVANTAGES

Advantages

- Students will be notified once the organizer publishes the event details.
- Complete work on time as expected and a quick and easy data management process for users.
- The quick and easy use of an automated data management method.
- Accessibility is increased.

Disadvantages

- The application will be primarily designed for Android devices and will not be compatible with other operating systems.

TECHNICAL REGIMENTS

Android Studio

The primary integrated development environment (IDE) for developing Android applications is Android Studio, which is based on IntelliJ IDEA [7]. Other features that increase productivity when creating Android applications are provided by Android Studio in addition to the sophisticated code editing and development tools included in IntelliJ IDEA.

Android SDK

Android SDK is a collection of development software and libraries required to create Android applications. The majority of application developers use this functionality to create cutting-edge features such as push alerts.

Java

The key reasons Java is the most widely used programming language because of its compatibility and versatility. As of 2019, 88% of smartphones operate Android, a mobile operating system written in Java [8]. Java is utilized for software development, mobile applications, and so on. Java provides many opportunities for developers.

Firebase

Firebase is a mobile app development platform that offers users a broad array of tools and services to support app development. Users have more time to work on the application's UI and other features because they handle the backend of the apps.

RESULTS

This section provides a brief overview of the project's implementation including its outcomes and test case analyses. A brief description of the fieldwork conducted in this study was also provided.

Login and Registration Page

The organizer and users can login using their credentials, and their Google accounts for the registration the students can create a new account to login by entering all the required details such as email, registration number, username, password, college, etc., as shown in Figure 2.

To improve user functionality and data management, this component of the Android application incorporates real-time database and Firebase authentication. Users have the option to log in using their email ID through the 'Login Activity.' They are automatically taken to the "main activity" after completing the login process successfully, where they can utilize the capabilities of the application [8].

To guarantee a flawless user experience, the application is configured to go straight to the primary activity at startup if the user has already completed authentication. On the other hand, users can establish accounts within the application through the 'Register Activity.' Firebase authentication is then used to safely create user accounts after performing validation checks to guarantee the accuracy of the entered data. Concurrently, user information is stored in the Firebase real-time database to guarantee effective data administration [9].

Posting Event

The organizer can post/add an event, which consists of the event name, description, held by, poster, registration link, etc., as shown in Figure 3.

View Event and Description

All college-related activities posted by organizers are displayed on the front page [10]. On this event detail page, users can view specific event information, as well as register for and rate the event if they are interested, as shown in Figure 4.

Event Share Activity

With the Simple Touch event-sharing feature, users can effortlessly promote events by posting event posters across various social media platforms. Users can easily inform their social networks about forthcoming events with a few quick taps, boosting the visibility of the event and drawing in more attendance [11]. Users may choose which social media sites to post on and which event posters to share thanks to the user-friendly interface. Simple Touch facilitates easy connection with major networks such as Facebook, Twitter, and Instagram, allowing users to reach a larger audience with less effort [12]. Event planners can interact with a wide variety of attendees and expand the reach of their events by utilizing social media sharing features, as shown in Figure 5.

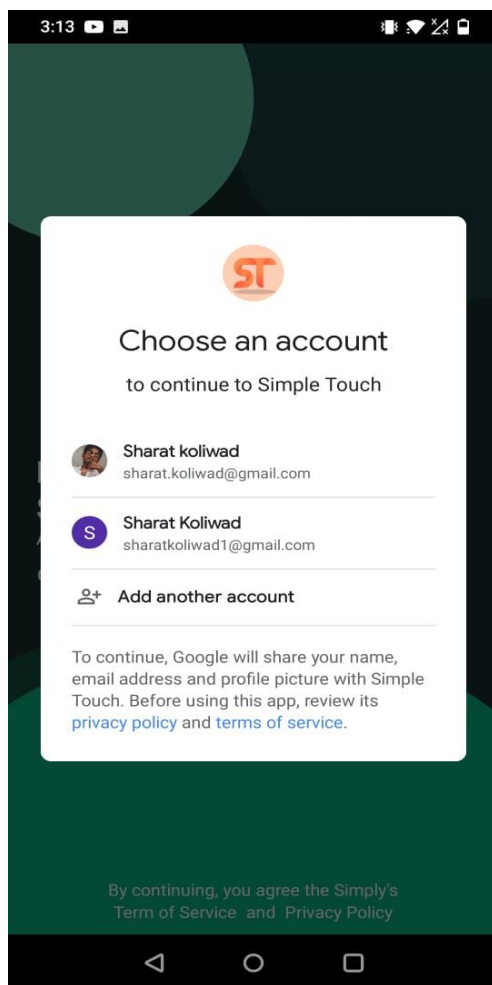


Figure 2. Login page, registration page.

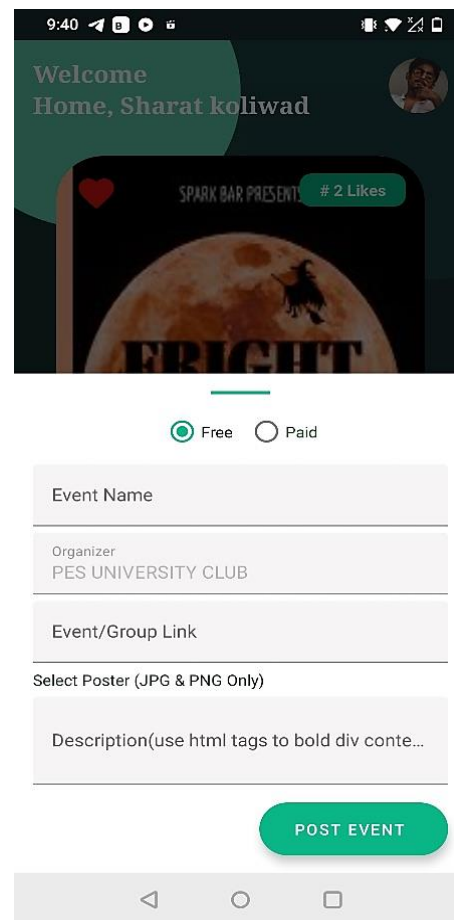


Figure 3. Posting event.



Figure 4. View event description.

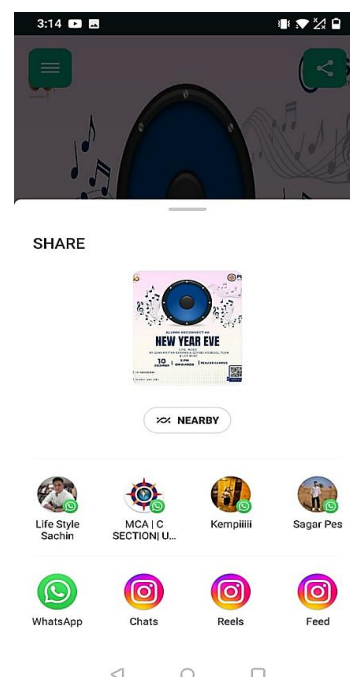


Figure 5. Event share activity.

CONCLUSION

In educational establishments such as colleges and universities, the Student Event Management System is quite helpful, particularly in the current digital era, where everything is done online. The suggested approach significantly reduces human labor by eliminating the requirement for paperwork. As soon as the administrator or organizer adds a new event, notifications are instantly sent to ensure that no student is left out of the opportunity to participate. Because the college administers the application, data security is ensured, and there is no chance of information breaches. Because it is a mobile application, customers can obtain event information instantly and from any location. This provided an unmatched level of ease. Students gain a great deal from this accessibility because it makes it simple for them to learn about forthcoming events, which promotes increased involvement and participation.

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