

Establishing system for an Alumni Engagement and On-Campus Company Insights

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Abstract - This paper presents a comprehensive system for alumni engagement and on-campus company insights at Pimpri Chinchwad College of Engineering and Research (PCCOER). Leveraging technologies like Google Firebase, the system facilitates alumni connections, on-campus company insights, and personalized recommendations for students based on their engineering stream. Inspired by the Centralized Alumni Management System (CAMS), it incorporates alumni registration, verification, and networking features, fostering seamless connections between current students and graduates. Additionally, the system integrates elements of CAMS' mentorship process, enabling mentorship opportunities between alumni and students. Dynamic blogs covering technology trends, industry insights, and on-campus company visits enrich the academic journey, while timely notifications about on-campus company drives keep students informed. Previous year college placement data, managed by administrators, provides valuable insights into placement trends. Overall, the system enhances student engagement, fosters collaborative learning, and contributes to higher rates of successful placements for PCCOER students.

Key Words: Alumni engagement, Pimpri Chinchwad College of Engineering and Research (PCCOER), Google Firebase, Personalized Blog recommendations, On-campus company Drives Notifications, Administrators, Share Thoughts.

I. INTRODUCTION

In today's ever-changing educational environment, maintaining alumni connections and gaining insights into on-campus industry happenings are vital for student success. This paper introduces an innovative system developed at Pimpri Chinchwad College of Engineering and Research (PCCOER) using Google Firebase technology. It serves as a bridge between students and alumni, offering tailored guidance and real-world career perspectives. Through dynamic blogs covering emerging technology trends and industry insights, students are engaged in an enriching learning experience. This paper outlines the system's development process, its functionalities, and the positive impact it has on student academic and career outcomes.

II. Objectives

- **Alumni Connection:** Develop an alumni engagement portal to facilitate alumni connections with PCCOER, enabling them to create profiles, connect with fellow alumni, and engage with the institution for mentorship, guidance, and support.
- **Improve Placement Outcomes:** Empower students with access to previous year college placement data, enabling them to identify trends, give information through blogs about different on-campus company patterns, benchmark their performance, and strategize effectively for future opportunities.
- **On-Campus Company Experience Blogs:** Create a dynamic blog-like section where students can access on-campus company information and their exam pattern, selection process, and work culture from alumni. Implement keyword-based content filtering to ensure the quality and relevance of shared content.
- **On-Campus Company Drive Notification:** Introduce a notification session that aggregates real-time job information from various domains managed by the College Placement Officer.
- **Placed Student Information:** Platform shows placed student photo, name, company name information. These motivate students and help them to directly react out with alumni for specific information related to drives.
- **Personalized Recommendations:** Implement a recommendation system that tailors content suggestions to individual students based on their engineering stream for enhancing their academic and career preparation.
- **Student Showcase Platform through tweets:** Create a dedicated space for students to share their certification, achievements, projects, and thoughts with the wider student community.

III. System Architecture

Flowchart illustrates the proposed architecture for a university system, delineating the user journey based on their role as a student or administrator.

At the system's inception, users are directed to the homepage, where they are prompted to either register for a new account or log in with existing credentials. Upon successful authentication, the system distinguishes between admin and student users.

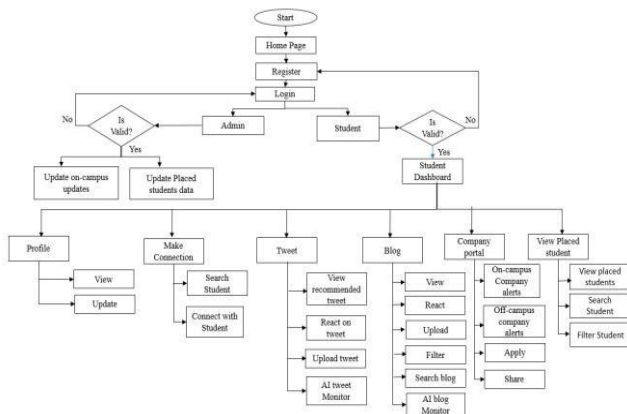


Fig 1. Flow and Design of System

For Admins: Upon identification as an admin, users are directed to an admin dashboard, granting them access to functionalities such as updating on-campus announcements and managing student records.

For Students: Students are led to a personalized dashboard offering an array of features, including profile management, peer connections, tweet recommendations, company portal access, and alerts regarding on-campus activities and placements. Additionally, students can interact with tweets, upload content, apply for opportunities, and monitor alerts relevant to their academic and professional journey.

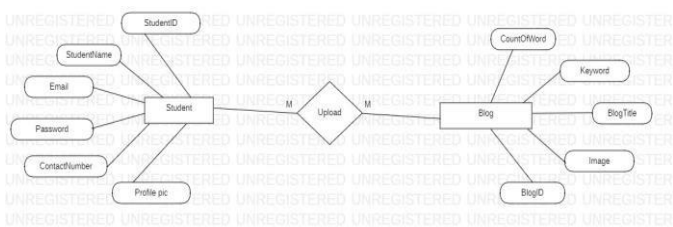


Fig 2 . ER diagram for Student to Blog

The relationship between students and blogs is characterized by a many-to-many association. This means that multiple students can contribute to and interact with multiple blogs, and vice versa. Students have the freedom to share their insights, experiences, and learning resources through blog posts, while also being able to engage with and comment on posts created by their peers. Similarly, blogs serve as a platform for facilitating collaborative learning and knowledge sharing among students across various academic

disciplines. This dynamic interaction fosters a vibrant community where students can exchange ideas, provide feedback, and gain valuable insights from diverse perspectives.

IV. Implementation

4.1. Technologies:

- React:** We chose React as the primary frontend framework for its component-based architecture, which facilitates code reusability and maintainability. React's virtual DOM enables efficient rendering of dynamic user interfaces, enhancing the platform's responsiveness.
- React Libraries:** To enhance the functionality and aesthetics of the platform, we utilized several React libraries. This includes:
 - React Router:** for declarative routing, enabling seamless navigation between different pages within the application.
 - React-Quill:** for integrating a rich text editor feature, allowing users to create and format blog posts with ease.
 - React-Icons:** for incorporating scalable vector icons into the user interface, improving visual appeal and accessibility.
- Redux Store:** To manage the application's state in a predictable and centralized manner, we implemented Redux as a state management solution. Redux facilitates efficient data flow and enables components to access and update shared state seamlessly.
- Firebase:** As our backend-as-a-service (BaaS) provider, Firebase offers a comprehensive suite of tools and services for building scalable and real-time applications. We utilized Firebase Authentication for user authentication and Firebase Realtime Database for storing and synchronizing application data in real time.

4.2. Feature Implementation:

- Firebase Realtime Data Fetch:**
 - Utilizing Firebase Realtime Database, we implemented real-time data fetching from various collections within our database.
 - For example, we fetched tweets, user profiles, and blogs from their respective collections, ensuring that the platform

reflects the latest updates and interactions in real time.

- By leveraging Firebase's real-time synchronization capabilities, users experience seamless and instantaneous updates without the need for manual refreshing.

2. User Authentication with Firebase:

- We integrated Firebase Authentication to manage user authentication within the platform.
- Upon accessing the application, users are prompted to authenticate their identity using Firebase Authentication.
- Once authenticated, users gain access to personalized features and content based on their user profile and permissions.
- Firebase Authentication enables secure authentication methods such as

email/password, Google Sign-In, or thirdparty authentication providers, ensuring robust user authentication and authorization mechanisms.

3. Routing with Firebase Authentication:

- To manage user authentication in routing, we implemented protected routes using Firebase Authentication.
- When users attempt to access restricted pages or features within the application, the routing logic checks their authentication status using Firebase Authentication.
- If the user is authenticated, they are granted access to the requested route. Otherwise, they are redirected to the login page to authenticate their identity before proceeding.
- This ensures that sensitive or restricted areas of the platform are only accessible to authenticated users, enhancing security and user privacy.

4. Device Size Adaptable Website View:

- We prioritized responsive design principles to ensure that the AlmExperience platform offers an optimal viewing experience across various device sizes and screen resolutions.

- By implementing responsive CSS techniques and media queries, we ensured that the platform's layout and content adapt dynamically to accommodate different screen sizes, including desktops, laptops, tablets, and mobile devices.
- This device size adaptability enhances accessibility and usability, allowing users to access and interact with the platform seamlessly regardless of the device they are using.

V. Results

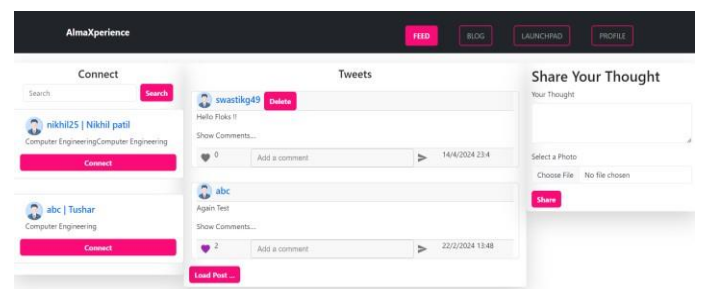


Fig3. Feed Page

It is a content feed, that aggregates and displays a collection of content items. The content items can include articles, posts, news stories, updates, images, tweet, or any other type of media that users are interested in and also Providing feature of search User as per username.

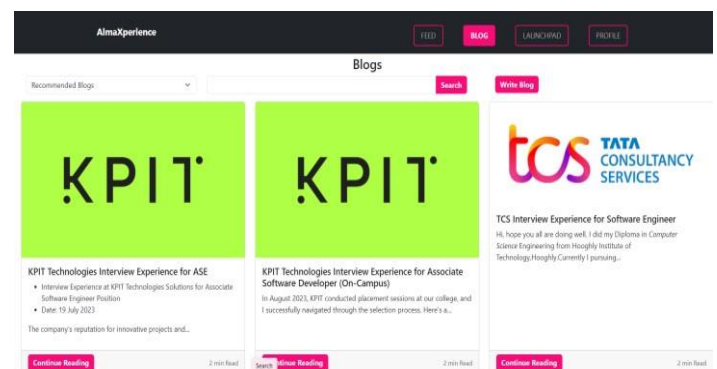


Fig 4. Blog Page

This page provide visitors with a clear understanding of what the blog is about and why they should be interested in exploring its content further. It serves as an important tool for attracting and retaining readers and can contribute their opinions and experiences through blog.

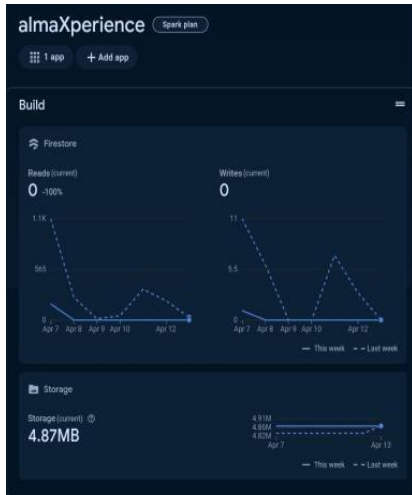


Fig.5 User Traffic Analysis using firebase

Firestore provides valuable insights into user traffic analysis and storage usage for projects, as demonstrated in the AlmaXperience app screenshot. User traffic analysis reveals usage patterns, popular features, and user engagement levels. For instance, on April 12th, there were 1.1K reads and 11 writes to Firestore, indicating high user interaction with the app's content. Storage information helps in optimizing storage allocation and identifying areas for efficiency. Currently, the AlmaXperience app utilizes 4.91 MB of storage, reflecting effective management. Additionally, Firebase analytics aids in bug detection, tracking marketing campaign performance, and assessing global app usage. Overall, Firebase empowers app developers to enhance user experience, optimize performance, and make informed decisions.

VI. CONCLUSIONS

The system developed for alumni engagement and oncampus company insights at Pimpri Chinchwad College of Engineering and Research significantly enhances student engagement and preparedness for placements. Leveraging technology, including Google Firebase, the system offers personalized recommendations, dynamic blogs, and timely notifications about company drives. The inclusion of previous placement data fosters a collaborative learning environment, empowering students with valuable insights. This research underscores the importance of tailored educational platforms in preparing students for the competitive job market. Moving forward, continued investment in innovative technologies will be crucial to ensure students' readiness for evolving career demands. By prioritizing student engagement and providing access to real-world insights, institutions can effectively prepare students for success in their academic and professional pursuits, ultimately shaping the future workforce and driving positive societal change.

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