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Eventify: Campus Event Management Web-App

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Abstract - The Campus Event Management System (Eventify GCOEC) is a dynamic digital platform designed to streamline the organization, participation, and management of campus events. By integrating features such as user registration, event booking, payment verification, ticket management, certification distribution, and administrative controls, the system enhances efficiency and user experience. This paper explores the functionalities, technical architecture, and impact of Eventify GCOEC on campus event coordination.

Key Words: Campus Event Management Web-App, Student Engagement, Event Announcements, Communication Hub, Real-Time Updates, Next.js, Tailwind CSS, MongoDB, Website Development.

1. INTRODUCTION

Campus events are integral to fostering engagement and learning among students. However, traditional event management methods often result in inefficiencies such as miscommunication, lack of proper participant tracking, and difficulty in certificate distribution. Eventify GCOEC addresses these challenges by offering a centralized platform that simplifies event planning and participation for students, faculty, and administrators.

2. PROBLEM STATEMENT

Managing campus events in colleges is often a challenging task due to the lack of a centralized system. Students frequently miss important events due to limited awareness and inefficient communication channels. Event organizers face difficulties in tracking participants, maintaining event records, and verifying payments. Additionally, the process of distributing event certificates and keeping track of winners is often disorganized, making it difficult for students to access their achievements.
The absence of a structured event management system leads to miscommunication, reduced student engagement, and inefficiencies in event administration. A digital platform is needed to streamline event discovery, registration, ticketing, and certification, ensuring a seamless experience for both students and event organizers. The **Campus Event Management Web-App** aims to address these challenges by providing an integrated solution for event coordination, participation, and management.

3. LITERATURE SURVEY

Event management systems have significantly benefited from advancements in software engineering, web technologies, and database management. Rapid prototyping enables iterative user interface design, improving usability and efficiency in event applications (Hix & Hartson, 1993) [1]. Web technologies like HTML, CSS, and JavaScript contribute to visually appealing and structured platforms (Schafer, 2010) [3], while server-side frameworks such as Node.js enhance real-time interactivity (Cinco de NodeJS, 2010) [2]. Agile and DevOps methodologies ensure continuous improvement in software development, making event management applications more scalable and robust (Pressman, 2015) [6].

Database selection plays a crucial role in handling large datasets and user traffic. NoSQL databases like MongoDB offer scalability advantages, making them suitable for real-time event applications (Leavitt, 2010) [7]. The MEAN stack—MongoDB, Express, Angular, and Node.js—provides a seamless full-stack development approach (Holmes, 2015) [4]. Additionally, benchmarking methodologies help optimize system performance, ensuring responsiveness under varying loads (Amza et al., 2002) [5]. These advancements collectively contribute to the development of efficient and user-friendly event management platforms.

4.SYSTEM ARCHITECTURE

The Campus Event Management Web-App follows a client-server architecture, consisting of a **frontend**, **backend**, and **database**. The frontend communicates with the backend through **REST APIs**, and the backend handles business logic and data storage.

1. **Frontend Architecture:**
   - Built using **React.js**, **Redux**, and **Tailwind CSS**.
   - Provides dynamic interfaces for event browsing, registration, and certificate download.
   - Communicates with the backend via REST APIs for data updates and user interactions.
2. **Backend Architecture:**
   - Developed with **Node.js** and **Express.js** to handle HTTP requests and business logic.
   - Manages user authentication, event creation, ticket verification, and certificate generation.
   - Provides REST APIs for frontend communication.
3. **Database:**
   - **MongoDB** stores user profiles, event details, ticket status, and certificates.

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- Uses flexible, schema-less design for easy scalability and dynamic data handling.

4. **External Tools:**
   - **ShadCN**: UI components.
   - **Vercel:** Hosts the frontend application, ensuring seamless deployment and performance.
   - **Postman**: API testing.
   - **GitHub**: Version control.

5. FEATURE & IMPLEMENTATION

5.1. Home Page

At the top of the page, the GCOEC logo is prominently displayed, accompanied by the tagline "Where Campus Life Comes Alive", welcoming users to the platform. This section sets the tone for the website, encouraging student engagement with campus events.

Fig-5.1.1: Hero Section

The **Explore Events & Committees** section allows users to easily access event listings and explore various event committees on campus. Users can browse through the events based on their interests and check out the relevant committee pages for more information.

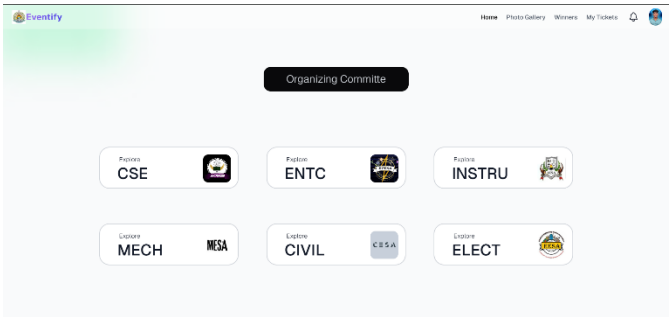

Fig-5.1.2: Committees Section

Below that, the **Upcoming Events** section showcases a list of upcoming events in a card layout. Each card provides essential event details, including the event name, date, time, and a brief description. When users click on any event card, they are redirected to the **Event Details** page, where they can find more detailed information about the event, such as the full description, venue, agenda, and an option to register or participate.

With its clean and intuitive design, the **Home Page** ensures that students and faculty can easily navigate the system, stay informed about campus events, and interact with them seamlessly.

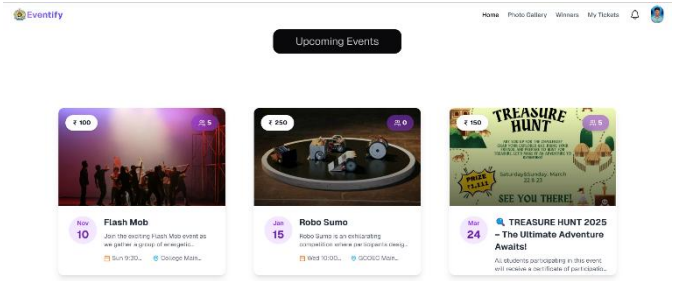

Fig-5.1.3: Upcoming Events

5.2. Event Details Page

The Event Details Page serves as a comprehensive hub for users to explore detailed information about a specific campus event. It provides all necessary event details, ensuring users have a complete overview to make informed decisions and engage effectively.

At the top of the page, the event title is prominently displayed along with a visual header image that represents the event theme. Key event details, such as the organizer's name, location, and time, are clearly shown for quick access. Users can also view the event's poster, which reinforces the event's theme and helps create visual interest.

The page includes an event description, outlining the event's purpose, target audience, and other essential details. Additionally, users are provided with contact information for event organizers, making it easy to reach out for further inquiries.

An interactive "View Map" feature allows users to locate the event venue, while an "Add to Calendar" option enables them to easily save the event details to their personal calendar

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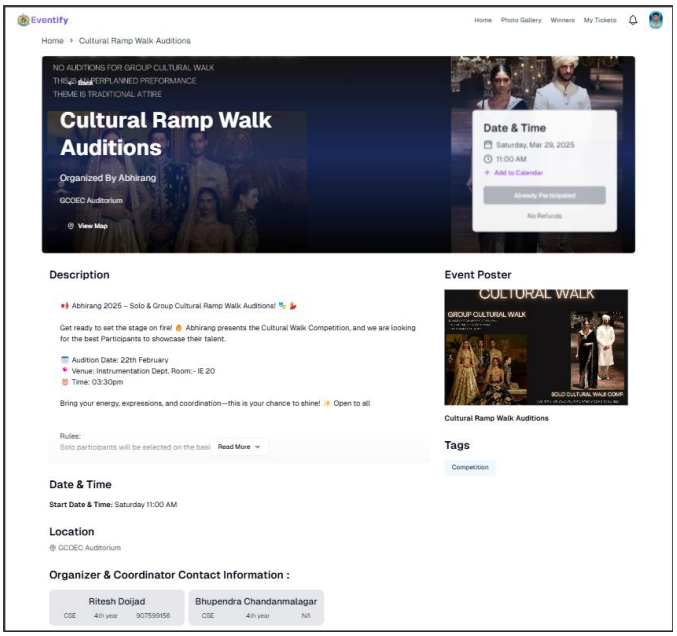

Fig-5.2: Event Details Page

5.3. My Tickets Page

The "My Tickets" page serves as a centralized hub for users to manage and view their event tickets. It provides all necessary details about purchased or registered tickets, ensuring users have a clear overview to track their tickets and make informed decisions about their participation.

At the top of the page, the title "My Tickets" is prominently displayed. Below, users can quickly view a list of their tickets, organized in a card layout. Each card displays essential ticket details such as the event name, date and time, location, and a visual representation of the event, like a poster or image.

The page includes a search bar and sorting options, allowing users to easily find and organize tickets by date. Additionally, filters for ticket status (Confirmed, Pending, Rejected) provide users with a streamlined way to manage their tickets.

For tickets in the "Confirmed" section, a "View Ticket" button is provided. Clicking on this button opens the ticket in a detailed view with all event information, including the event name, date, time, venue, and a QR code or other registration details for event participation. This feature ensures users have easy access to all the necessary information related to their event participation.

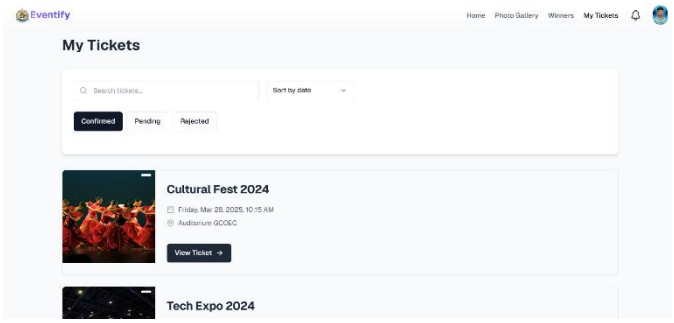

Fig-4.3: My Ticket Page

5.4. My Profile Page

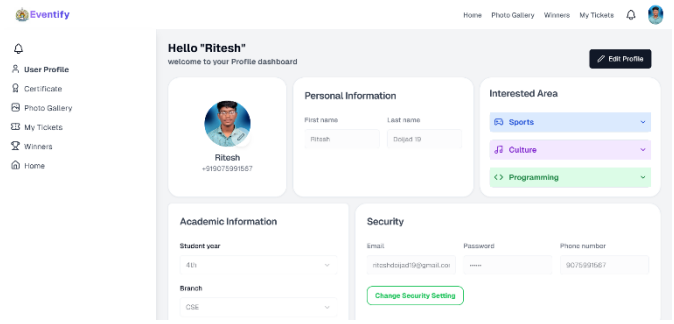

Fig-5.4: Profile Page

The **Profile Page** provides users with a centralized hub to manage and view their personal information. The page displays essential details like the user's name, profile picture, contact information, academic year, and areas of interest.

Users can update their details easily using the **Edit Profile** button. The page is organized into sections for personal info, academic details, and security settings, allowing users to customize their profiles and maintain up-to-date information.

The design is user-friendly, ensuring a smooth experience for managing account details.

5.5. Certification Page

The **Certificate Page** serves as a dedicated section where users can view and download the certificates for events they have participated in. It provides a clear overview of all certificates earned, ensuring users can easily access their achievements.

At the top of the page, the title "My Certificates" is prominently displayed. Below, users can see a list of events with the corresponding certificate thumbnails. Each certificate card

shows the event name, date, and a preview image of the certificate.

Users can click on any certificate to view the full details, including a downloadable PDF version of the certificate. This page offers a convenient way for users to keep track of their accomplishments and access certificates as proof of their participation in campus events.

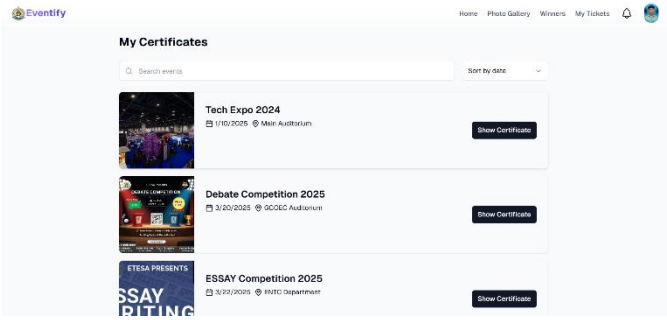

Fig-5.5: Certification Page

5.6 Winner Page

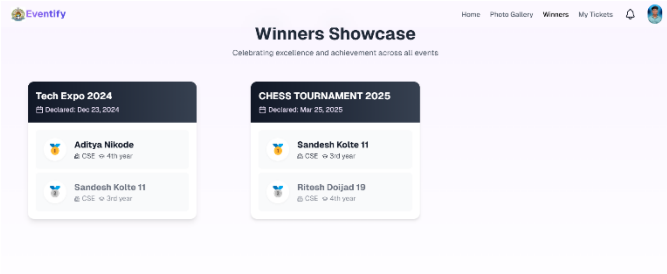

Fig-5.6: Winner Page

The **Winner Page** displays a list of winners for all events published by the admin. It serves as a hub for users to view the outcomes of various events and recognize the top participants.

At the top of the page, the title "Event Winners" is clearly displayed. Below, users can browse through a series of winner cards, each representing an event. Each card includes the event name, date, and the names or photos of the winners.

If an event has multiple categories, each category's winners are listed separately within the event card. This page allows users to easily explore the results of past events and acknowledge the achievements of the winners

5.7. Photo Gallery Page

The **Photo Gallery Page** showcases images from events, uploaded by the admin, providing users with a visual recap of event highlights.

At the top of the page, the title **"Event Photo Gallery"** is displayed. Below, users can view a collection of event photos, organized in a grid layout for easy browsing. Each image is accompanied by the event name and date, helping users quickly identify which event the photos belong to.

The gallery is designed to offer a nostalgic or promotional look at past events, allowing users to relive memorable moments and engage with the event's visual content.

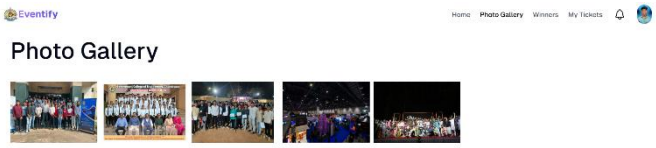

Fig-5.7: Photo Gallery Page

5.8. Create Event Page

The event creation module enables users to efficiently create and manage events through a structured form. This form captures essential event details, ensuring a seamless event management experience.

Key Features

- **Event Title & Description:** Users input a title and description to define the event.
- **Pricing & Payment QR Code:** Allows users to set event fees and upload a QR code for digital payments.
- **Event Banner Upload:** Supports image uploads with a preview feature.
- **Organizing Committee & Coordinators:** Users select the responsible committee and coordinators.

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- **Participation Type:** Offers options for individual or group participation.
- **Venue & Date Selection:** Includes input fields and a date picker for scheduling.
- **Event Submission:** A "Create Event" button validates and submits the form.

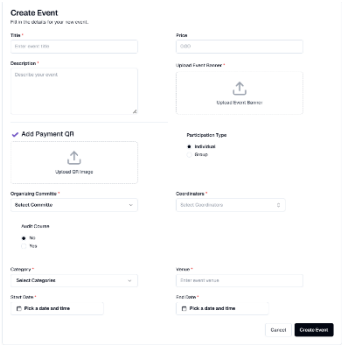

Fig-5.8: Event Creation Module

5.9. Ticket Verification Module

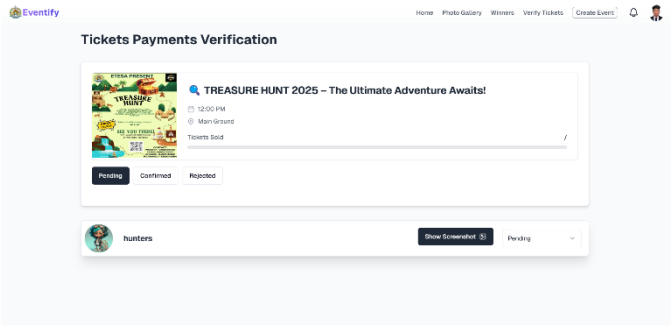

Fig-5.9: Ticket Verification

The **Ticket Verification** module allows event organizers to verify and manage ticket payments efficiently. It provides an intuitive interface for reviewing ticket details, ensuring authenticity, and updating ticket statuses.

Key Features

- **Event Overview:** Displays event poster, name, time, and venue for easy reference.
- **Tickets Sold Count:** Shows the total number of tickets sold.
- **Ticket Status Management:** Organizers can update ticket statuses as **Pending, Confirmed,** or **Rejected.**
- **Payment Verification:** Allows viewing payment screenshots for authenticity checks.
- **Status Modification:** Admins can change a participant's ticket status based on payment verification.

6. FUTURE SCOPE

The **Campus Event Management Web-App** has significant potential for expansion and enhancement. Future developments will focus on improving automation, scalability, and user engagement to streamline event management processes.

1. **AI-Powered Event Recommendations**
   - Machine learning algorithms can suggest events based on user preferences and past participation.
2. **Automated Certificate Generation & Verification**
   - Implementation of unique **QR codes** for certificate authentication.
   - Blockchain-based digital certificates for enhanced security and credibility.
3. **Advanced Ticketing & Payment Systems**
   - Multi-payment gateway support for seamless transactions.
   - **QR/NFC-based ticket scanning** for secure event entry validation.
4. **Enhanced User Engagement**
   - Leaderboards, badges, and point-based incentives to encourage participation.
   - Gamification elements to improve user retention and event interactions.
5. **AI Chatbot for Event Assistance**
   - Integration of an AI-powered chatbot for real-time event queries and automated responses.
6. **Cross-Campus & Inter-University Events**
   - Expanding the platform to facilitate collaboration between multiple colleges.
   - Support for **large-scale inter-university competitions and conferences.**
7. **Mobile Application Development**
   - A dedicated mobile app for real-time event updates and registration.
   - Push notifications for event reminders and announcements.
8. **Integration with University ERP Systems**
   - Synchronization with college administrative software for streamlined event approvals and faculty involvement.

7.CONCLUSION

The Campus Event Management Web-App streamlines event organization, participation, and administration within the college campus. By integrating user-friendly features such as event registration, ticket booking, certificate generation, and a dedicated admin dashboard, the platform enhances efficiency and engagement for both students and event organizers.

With a structured system architecture comprising a React.js frontend, Node.js backend, and MongoDB database, the platform ensures seamless interaction between users and event management functionalities. The inclusion of a photo gallery, winner announcements, and certificate distribution further enriches the user experience.

By leveraging modern web technologies and deploying the application on Vercel, the system ensures accessibility,

scalability, and ease of maintenance. Future enhancements could include AI-powered recommendations, event analytics, and deeper integration with social media to further improve engagement.

Overall, this research highlights the potential of a digital solution in optimizing campus event management, reducing administrative overhead, and fostering a more connected and interactive college environment.

8. ACKNOWLEDGEMENT

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Lastly, we thank our peers and users who provided valuable feedback, helping us refine and improve the platform. Their support and engagement have been instrumental in the success of this research.

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