

Evently-AI-Powered College Event Management System

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ABSTRACT

The Evently-AI-Powered College Event Management System is a web-based platform designed to modernize how academic institutions plan, manage, and evaluate college campus events. College event planning can be time consuming and based on manual data processing, which can lead to scattered and broken communication at various stages. These outdated methods lead to delays, miscommunication and limited outreach for organizers and participants. Evently addresses the limitations of traditional, manual event coordination.

The proposed system centralizes event-related tasks, minimizes administrative workload, and enhances student engagement through an intuitive, AI-supported interface. It offers role-based dashboards for administrators, faculty, and students, enabling each group to access functions specific to their responsibilities. Key features include event proposal workflows, participant registration, feedback collection, real-time analytics, and media sharing. AI integration will further strengthen the platform through personalized event recommendations and a chatbot assistant for event discovery. Through this platform, users will be able to quickly register online and navigate through current or future events, sign up for the events and get timely reminders, making it efficient and accessible for both students and administrators.

The research carried out for this project employed following key strategies: background research and literature review to identify key gaps in the existing systems, technical research, system development, data collection and analysis. Next, project planning, architecture development and system implementation were executed. The end result-Evently-was user-tested both from admin and user side. The technology stack comprises Laravel for backend operations, ReactJS for a dynamic interface, and AI modules for chat and analytics. Overall, the system improves coordination, transparency, and decision-making within campus events. By automating routine tasks and taking advantage of data insights, colleges can promote increased student participation and operational efficiency by taking advantage of Evently, and while doing so, fundamentally shifting how events are managed on campus.

Keywords: AI-Powered System, College Event Management System, Laravel, ReactJS, Chatbot, Student Engagement, Automation, Role-Based Dashboard, Educational Technology, Smart Campus

INTRODUCTION

Motivation

Events such as seminars, cultural festivals, technical workshops, hackathons, sports activities, and student-led initiatives play a significant role in shaping the academic and social environment of higher education institutions. They not only complement classroom learning but also foster communication skills, collaboration, leadership, and professional networking, thereby enriching the overall student experience. Despite their importance, managing these diverse activities remains a challenging task for institutional administrators. Event coordination typically involves administrators, faculty coordinators, student bodies, and occasionally external partners, requiring substantial time, documentation, and communication efforts.

Traditional methods—paper-based submissions, email threads, messaging groups, and manual spreadsheets—often result in fragmented workflows and inconsistencies. Event organisers spend significant amount of time answering repeated queries on events such as the event schedule, venue and participation details. This lost time can be better utilised in strategic planning and execution of such events. These limitations lead to delays, duplicated efforts, reduced event publicity and outreach, and missed opportunities for student participation due to the absence of unified tracking and structured communication channels.

To address these challenges, the proposed **AI-Powered College Event Management System** introduces a unified digital framework designed to streamline the complete event lifecycle. The platform incorporates role-specific interfaces for administrators, faculty, and students, ensuring clear workflows for event creation, approval, promotion, and participation tracking. A distinguishing element of this system is the integration of an AI-driven chatbot that enhances user engagement by providing instant assistance, personalized events recommendations, event discovery and automated query handling regarding events. Repeated and frequent queries regarding event venues and schedules can be efficiently managed and answered by chatbots.

Additional features such as feedback analytics, participation dashboards and multimedia galleries aim to strengthen transparency in event organisation as well as increase student involvement. Designed with the scope of future expansion, the platform offers a modern, data-driven approach to event management and has the potential to support long-term digital transformation in Indian academic institutions

Aim

The primary aim of this research is to design and evaluate an AI-enabled event management platform that centralizes communication, reduces administrative burden on event management and improves student participation in college events.

Objective

The specific objective of the proposed study is as follows

1. To digitize the complete event lifecycle, including registrations, approvals, and feedback collection.
2. To enhance student engagement and participation through an interactive, user-friendly platform supported by data-driven insights.
3. To develop a scalable system architecture that can accommodate future upgrades such as mobile applications and online event features.

Contributions

RELATED WORK

There has been well documented shift in recent years from manual event coordination to comprehensive web-based event management system (EMS). This shift is well reflected and documented in academic literature. Existing research on event management technologies shows significant progress toward digitization, yet most systems remain limited to registration, ticketing, or basic promotional features. Studies in higher education environments highlight the need for platforms that support structured workflows and institutional governance, which general-purpose tools do not adequately provide. Commercial solutions such as Eventbrite, Townscript, and BookMyShow offer strong public-facing event capabilities but lack academic-specific features such as multi-level approvals, internal role management, or campus-oriented workflows. Conversely, academic platforms like Dryfta and Whova address conference-style needs but still offer limited personalization and minimal AI-based automation.

The Shift from Manual to Digital Frameworks

Historically, event coordination was characterized by manual registrations, paper-based announcements, and fragmented communication. Bawankar et al. identified these traditional methods as highly error-prone and time-consuming, noting a distinct lack of data security [1]. Similarly, Mayan-ao et al. argued that a heavy reliance on handwritten records and verbal coordination almost inevitably results in data duplication and significant administrative delays [2].

To mitigate these issues, early research focused on core automation. Kamal Acharya developed a system designed to improve processing speed through a graphical user interface, emphasizing consistency over manual entry [3]. In a more localized context, Keerthi and Priyanka introduced the Sathyabama Event Management System (SEMS), a responsive web application designed specifically to eliminate the "paper trail" in complex college environments. Mishra and Dubey expanded on this by proposing a virtual event manager—a centralized portal that allowed users to book venues and equipment from a single digital location, effectively ending the era of fragmented coordination [4].

Technical Innovations in Security and Real-Time Communication

As systems moved online, the focus shifted toward making these platforms scalable and secure. The technical architecture of an EMS has advanced from simple database storage to high-speed, real-time interaction.

Real-time Communication: Gupta and Vani argued that WebSockets represent a revolutionary step for EMS, enabling full-duplex communication while significantly reducing server load compared to traditional polling. This is supported by Liu and Sun, who predicted that real-time data transmission via WebSockets would soon become the standard for all modern web-based information systems [5].

Security and Authentication: Protecting user data became a primary concern as platforms scaled. Mahindrakar and Pujeri highlighted the utility of JSON Web Tokens (JWT) for lightweight, secure data sharing [6]. To manage user permissions within large organizations, Honey John et al. suggested implementing Role-Based Access Control (RBAC) to ensure that sensitive event data remains accessible only to authorized personnel [7].

Automation Technologies: Beyond software, hardware integration played a role. Chandrasekharan et al. and Navanugraha et al. explored barcode-enabled systems and Auto-ID deployments to ensure that event registration and logistics remained both smooth and secure [8].

Academic-Specific Systems and Relationship Management

Higher education environments present unique challenges—such as institutional governance and multi-level approvals—that general-purpose tools often fail to address. Sonekar et al. used IEEE vTools as a benchmark for how digital suites can minimize administrative hassle through structured reporting and discovery modules [9].

A critical layer of this research involves Student Relationship Management (SRM). Piedade and Santos argued that campus-based systems should go beyond simple logistics to allow for the close monitoring of academic activities and tutoring support [10]. This is reinforced by Bond et al., who emphasized that educational technology must ultimately serve to foster higher levels of student engagement rather than just providing an administrative fix [11].

Addressing the Gap: Intelligent Systems and AI Integration

Despite the success of existing research in digitizing the event lifecycle, a significant gap remains: the lack of qualitative insight generation and automated user support. While traditional systems handle data entry well, they often fail to reduce the cognitive load on administrators or provide personalized experiences for attendees.

To address this, we introduce an AI-enhanced approach that moves beyond static database management. By integrating intelligent chatbots, our system aims to handle complex FAQs regarding eligibility and venues, with the potential to reduce administrative workloads. This aligns with broader research by Adamopoulou and Moussiades, who emphasize the necessity of chatbots in improving responsiveness within large, high-traffic

institutions.

Furthermore, we take advantage of AI for personalized event suggestions—a concept supported by Honey John et al. to increase event visibility.

While the literature confirms that the transition to digital EMS has vastly improved accuracy and efficiency, the consensus is shifting toward the need for more "intelligent" intervention. By combining robust workflow automation with AI-driven discovery and qualitative analytics, this research introduces a unified ecosystem specifically tailored to meet the sophisticated demands of the modern academic environment.

System Architecture

Overview

The proposed "Evently" system utilizes a modular, multi-tier architecture designed to ensure scalability, security and distinct separation of concerns. The architecture follows a client-server model where the frontend interacts with the backend ensuring smooth data flow between the user interface and the database.

Core Components

The system is composed of four primary components as illustrated in Fig. 1:

1. **Frontend (Client Layer):** Developed using **ReactJS**, the frontend provides a dynamic and responsive user interface. It features distinct panels for Students, Faculty, and Administrators, ensuring role-specific access control.
2. **Backend (Application Layer):** Built on the **Laravel** framework (PHP), this layer handles business logic, authentication, and API routing. It processes requests from the frontend and manages data interactions.
3. **AI Module:** An integrated Python-based module powers the AI features, specifically the chatbot and recommendation engine. This module communicates with the backend to fetch event data and provide personalized responses to user queries.
4. **Database (Data Layer):** **MySQL** is employed as the relational database management system to store user profiles, event details, registrations, and feedback data.

Data Flow

The system workflow begins with the Administrator or Faculty proposing an event. Upon approval, the event is stored in the MySQL database and becomes visible on the Student Dashboard. Students can then browse, register, and interact with the AI chatbot for queries. The chatbot retrieves relevant data from the event tables to provide instant support.

Implementation

A. Development Environment The implementation of the system was carried out using a robust technology stack chosen for performance and scalability. The backend logic was implemented using **Laravel**, while **ReactJS** was selected for the frontend to ensure a seamless single-page application (SPA) experience. The **AI Chatbot** was developed using Python to handle student inquiries.

System Architecture Diagram

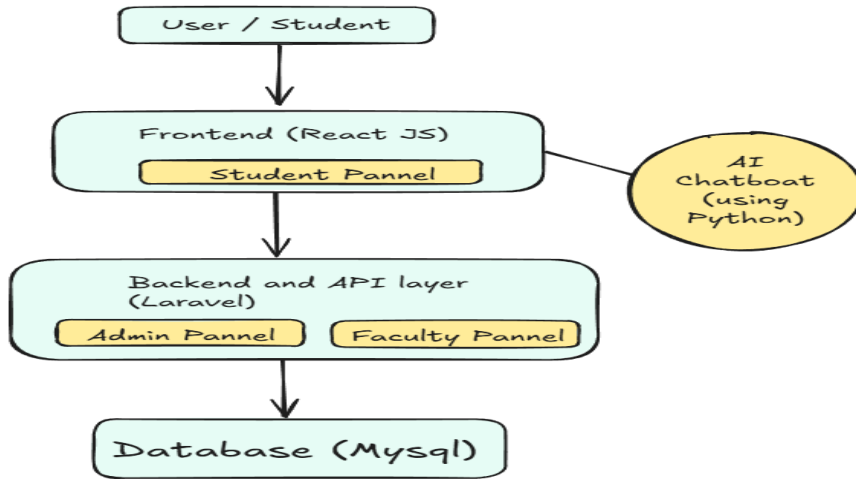
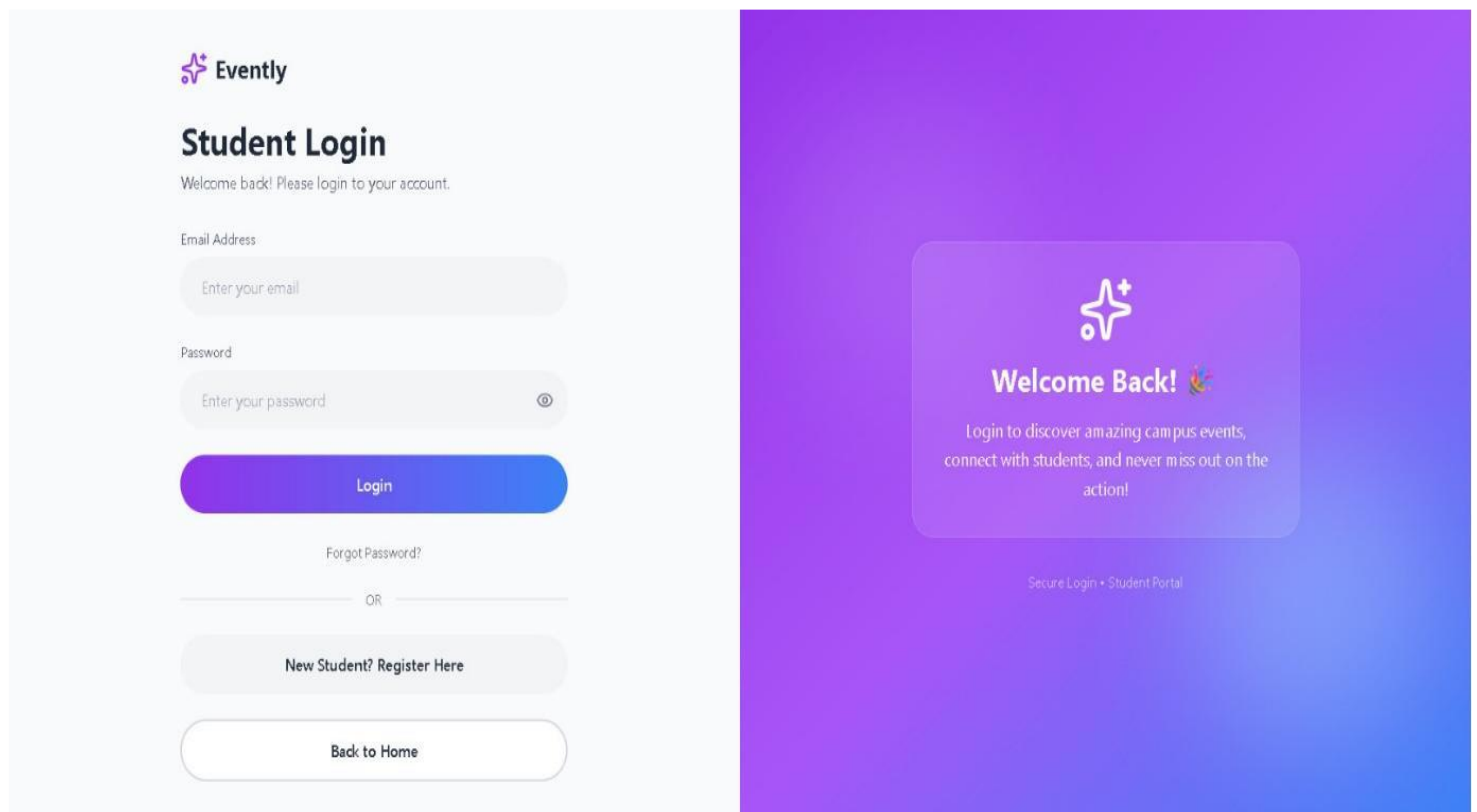


Fig 1 System Architecture

Key Modules

1. **Admin Panel:** This module serves as the central control hub. It allows administrators to approve or reject event proposals, manage user roles, and view system-wide analytics.
2. **Faculty Portal:** Faculty members can propose department-specific events and track their approval status. This module digitizes the traditional paper-based permission workflow.
3. **Student Dashboard:** Students can access a personalized dashboard to view upcoming events, register, and download participation certificates.
4. **AI Chatbot Integration:** A key differentiator of this system is the AI chatbot. It assists users by answering Frequently Asked Questions (FAQs) regarding event timings, venues, and eligibility, significantly reducing the manual query load on organizers.





Create Student Account

Join thousands of students discovering amazing events

Full Name

Enter your full name

Email Address

your.email@example.com

Phone Number

10-12 digits

Enrollment Number

Your enrollment number

College Name

Your college/university name

Course

B.Tech

Password (6-8 characters)

Create password

Confirm Password

Confirm your password

Sign Up

Already have an account? [Login](#)

Back to Home



Welcome to Evently! 🎉

Join thousands of students discovering amazing campus events, building connections, and creating unforgettable memories!

Secure Registration • Student Community

Fig. 2.1. User Interface: Student registration and login page

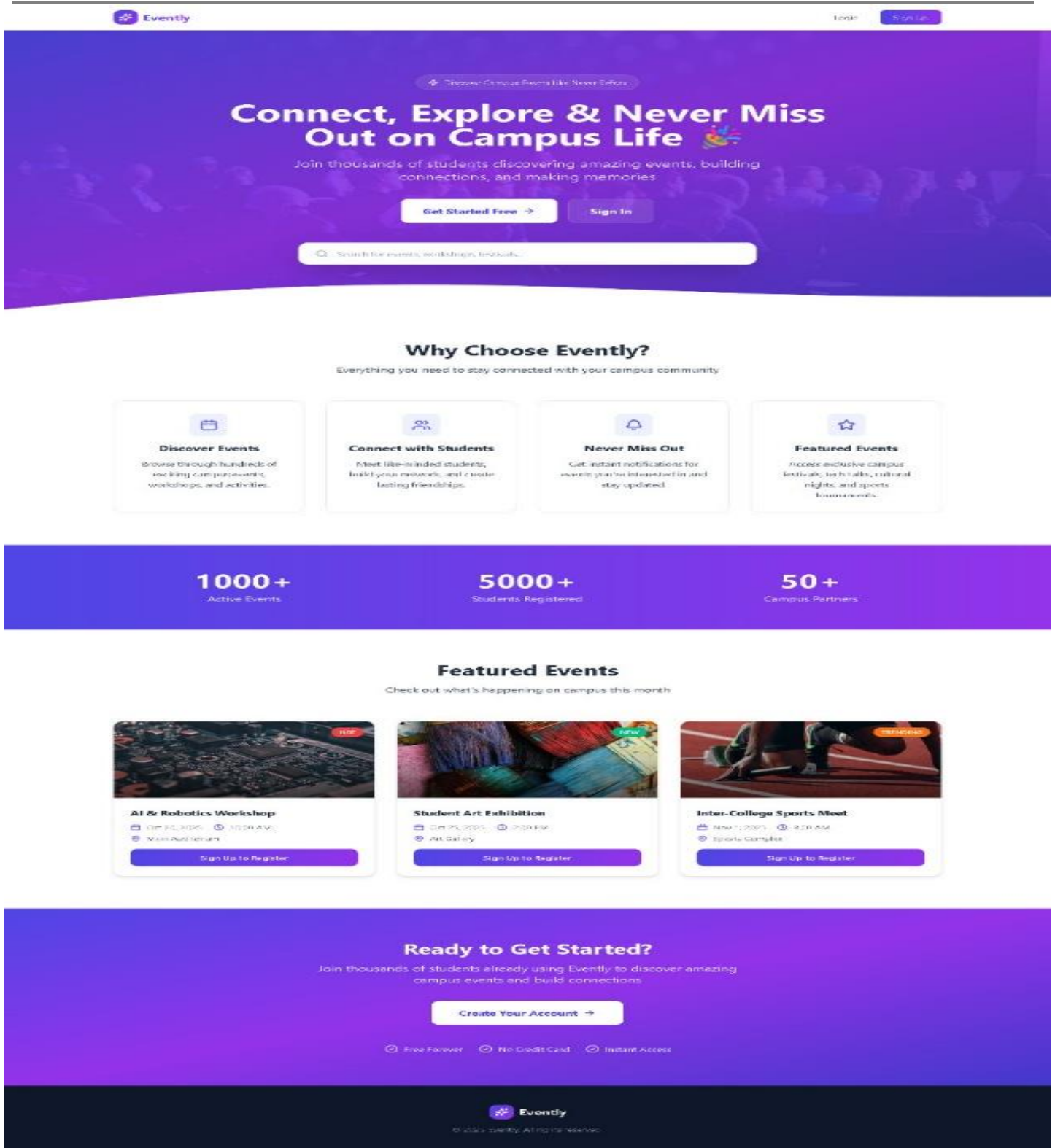


Fig. 2.2 User Interface: Student and Admin Panels

RESULT

System Performance Evaluation

The system underwent rigorous performance testing to evaluate the technical performance of the Evently platform. This evaluation was carried out under simulated usage conditions. The primary purpose of this testing was to determine whether the system can efficiently handle typical event management tasks such as user authentication, event browsing, registration process and AI-based query handling. Table I below summarizes the

response times for critical system operations.

Table I System Response Times

Operation	Average Response Time
User Login	~150 ms
Event Page Load	~250 ms
Registration Processing	~180 ms
Chatbot Response	1.0 - 1.3 seconds

These results indicate that the system remains highly responsive, with most functions executing in under 300 milliseconds. The chatbot response time is slightly higher due to data retrieval and processing operations; however, it is still within acceptable range for conversational systems.

These performance metrics confirm that the proposed system can efficiently manage real-time user interactions in a campus set-up.

DISCUSSION

Operational Challenges in Traditional Event Management

Background research and literature review was conducted to analyze the existing event management practices in educational institutions. Many Colleges and places of higher education still rely on either manual or semi-digital systems to organize and manage events. Such systems include:

- Paper-based event proposals
- Email communication
- WhatsApp or messaging groups
- Spreadsheet based participant lists
- Notice Board announcements.

These commonly used methods have several operational limitations.

Repetitive queries from students.

One of the major challenges observed in traditional

system is the large number of repetitive queries directed at event organizers. Since the event information is scattered, faculty coordinators and student volunteers face following repetitive queries

- What is the date and time of the event?
- Where is the venue or room location?
- How can I register for the event?
- Is the registration still open?

- Is my registration confirmed?
- Who is eligible to participate?
- Will participation certificates be provided?
- What is the team size requirement?
- Has the event schedule changed?

In manual system, organisers must repeatedly respond to these queries individually and repetitively increasing administrative workload and diverts time away from more productive planning and execution activities.

As mentioned in the Implementation section, all the event related information will be readily available to students on the student dashboard. Additionally, AI-enabled chatbot can answer all of the above-mentioned repetitive queries thereby significantly improving efficiency of event management.

Administrative Workload in Traditional Systems

In traditional manual or semi-digital event coordination process, faculty members perform many of the following tasks

- Collecting registration forms
- Updating participant lists in spreadsheets
- Sending reminders and announcements
- Responding to student queries
- Confirming participant eligibility
- Tracking attendance manually

With increasing participants numbers, faculty coordinators spend increasing amount of time in monitoring and repetitive communication rather than focusing on strategic planning activities such as

- Designing higher-quality academic events
- Collaborating with industry speakers
- Improving event content and structure
- Expanding interdisciplinary participation

The Evently System addresses these limitations through online registration, automated notifications and AI-enabled query handling.

Scattered communication in Traditional System

Scattered communication was one of the challenges identified in Motivation phase. In traditional system, event announcements are distributed through multiple channels such as:

- Departmental WhatsApp groups
 - Email circulars
-

- Printed posters
- Notice boards
- Social media posts

These communication channels are not integrated and hence students often receive incomplete information from any single source, leading to:

- Missed event opportunities
- Confusion regarding event schedules
- Reduced participation rates

The Evently platform resolves this challenge by providing centralised event dashboard having detailed descriptions, schedules and registration options for events.

Lack of Visibility of Campus Events

In many institutes the events information is circulated within the department, however, often times students from other departments may remain unaware of related events and activities. For example, a technical workshop organised by the computer science department may not be known to students of other departments. By maintaining centralised digital platform, Evently ensures that events across all the departments are visible to entire student community on campus, allowing students to discover opportunities beyond their own departments, thereby increasing cross department interaction and student participation.

CONCLUSION

The primary aim of this research was to develop and evaluate a digital platform that improves the college campus event management through centralized communication and automated workflows. The proposed Evently AI-powered College Event Management System provides a unified framework. Evently integrates key stages of event lifecycle-including event proposal, approval, registration and feedback collection within a single platform.

The system implements a role-based architecture that enables administrators, faculty members and students to access their role-specific features. The integration of AI chatbot module will further enhance user interaction providing quick access to event-related information and assisting in event discovery and registration.

Through development and evaluation of Evently, this research highlights the importance of structured and centralized digital platform that not only simplifies coordination among different stakeholders but also encourages broader interaction and participation of students across departments.

In summary, Evently platform successfully fulfills the objectives of this study by presenting a comprehensive digital solution for managing campus events. This system illustrates how modern web architectures together with AI-enabled technologies can contribute to more efficient event administration and improved student participation and engagement in educational campus. Evently can serve as an important step towards creating more connected and technology-driven campus ecosystem.

Future Work

While the current system successfully digitizes the event management lifecycle, several enhancements are planned for future iterations. These include:

1. **Mobile Application:** One of the planned enhancements is the development of dedicated mobile application

for Android and iOS platforms. Mobile application would enable students to access event information more conveniently and receive push-notifications about new events, registration deadlines and schedule updates.

2. **Advanced Analytics:** Another important future improvement planned involves the integration of advanced feedback analytic tools. Future versions of the platform will analyze the feedback data to extract sentiments and identify common theme in feedback responses

The system has potential to develop QR code-based attendance tracking and verification. This feature can potentially eliminate manual attendance sheets and improve accuracy and participation tracking. Additionally, there is scope to integrate live-streaming on the platform for virtual participation in the events. With these potential enhancements, the Evently platform can further evolve into a comprehensive and intelligent event management solution that supports more efficient, accessible, and data-driven campus event ecosystems in higher education institutions.

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