Univentra: A Web-Based College Event Management System for Efficient Event Coordination

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***Abstract*—The process of managing educational events requires the performance of many functions, including planning, scheduling, communicating, registering participants, and analyzing results of an event after its completion. However, traditional methods of managing educational events usually involve manual efforts, paperwork, and offline approval, as well as offline communication and interaction with a variety of sources. Such an approach can cause delays, inefficiencies, inconsistencies in data, and a lack of transparency. This paper presents a novel web-based solution called Univentra that includes a set of tools aimed at facilitating various event management activities and automating most parts of these processes. In particular, Univentra can create new events, manage their approval process, register event participants, notify stakeholders about any changes in the event schedule, collect feedback, and perform some other important actions. Moreover, the system ensures secure access to the information, which means that only authorized people can interact with specific event components. As a web application, Univentra is flexible enough to accommodate a great number of users and events as it is built using state-of-the-art web technologies and databases. An experimental evaluation of the solution proves that Univentra provides much more efficient management, quick processing, and greater user satisfaction than conventional solutions used by many institutions.**

***Index Terms*—EMS, web application, college events, automation, role-based access control, and Univentra.**

I. INTRODUCTION

Event management is one of the crucial components in any educational institute as it enables the organization of activities, including seminars, workshops, technical competitions, cultural programs, and other festivals. These events play a significant role in the development of students as they can get technical knowledge, learn how to communicate effectively, and become great teammates. Nevertheless, conducting these kinds of events takes time, effort, proper planning, coordination, and communication between stakeholders.

A large number of academic, technical, and cultural events are held in educational establishments, which significantly influence students' development. Unfortunately, some colleges continue utilizing outdated approaches to organize these activities, such as distributing notices, sending emails, and filling out paper forms. The described processes are extremely inefficient and prone to mistakes.

These processes usually imply the utilization of manual methods when paperwork and informal communication channels are involved. As a result, it may take some time to get an approval, monitor event progress, and manage participants' information. Moreover, no centralized system means scattered information that is quite difficult to find even for those who are interested in attending particular events.

Another drawback associated with manual systems refers to the problems related to the accuracy and consistency of collected information. Physical documentation might get lost or damaged; besides, repetitive inputting causes data inaccuracies. Manual processes mean that people will have to deal with extra work since automation tools are not used in this case.

Nowadays, the development of digital technologies allows implementing automated software solutions that can facilitate this process and make it more effective. Such software solutions as web-based platforms provide scalability, centralized data management, real-time communication, and automation.

This paper introduces Univentra which represents web-based Event Management Software that can become a perfect alternative to conventional solutions in the sphere under analysis.

II. LITERATURE REVIEW

There has arose the need to be more efficient, no more manual work, need to have better user experience, which has resulted in the creation of Event Management Systems. Different researchers have put forward different systems to consider different aspects of the event management.

Kumar et al. developed a college event management system that automates event planning and improves student engagement through digital platforms. Their system shows how technology can simplify organizing seminars, workshops, and cultural events. Similarly, Ashok et al. proposed a role-based event portal where administrators and organizers can post events and users can register online. The system provides features such as event approval, registration tracking, and dashboards, which help in reducing administrative workload and maintaining records.[1]

Blancaflor et al. proposed Cardinal Connect, a system designed to support student organizations in managing events digitally. The system automates documentation, event execution, and post-event evaluation, improving coordination between organizations and administration.[2]

Aamrapali Wandhre et al. created and launched a social media platform specifically designed for college campuses, aiming to improve communication and resource sharing among students, faculty, and other academic staff. This platform was developed to overcome the shortcomings of public social networking sites, which often fail to address the unique requirements of academic communities. The authors point out that conventional communication tools, such as WhatsApp, which are commonly utilized in colleges, provide limited functionality, highlighting the need for a more comprehensive solution.[3]

A smart college event management system using the MERN stack was also proposed to centralize event information and provide a user-friendly platform for managing events. The system includes features such as user registration, event browsing, and administrative controls. It reduces manual errors and improves system efficiency through modern web technologies.[4]

An important part of notifications is the ability to send personalized notifications to users based on their interests, settings, and activities on the site. Users can set notification settings to receive alerts for certain activities, such as new posts, upcoming events, messages from colleagues, and activities on channels they subscribe to. By allowing users to set notification preferences based on their needs and preferences, Campus Connect ensures that users receive meaningful and action- able messages without being bombarded by unnecessary alert. This personal approach improves communication and participation on campus, thus increasing engagement and collaboration.[5]

Rajmane et al. proposed a digitalization of management system for college and student information. They emphasized the need for a computer-based system to manage college and studentdata, which can be easily accessed and updated. Their study found that a computer-based management system can improve the efficiency of college management by reducing manual work and ensuring the timely availability of information. This study supports the importance of a platform like the one proposed in this research paper.[6]

Even with these developments, most of the existing systems have not been fully integrated to include features like intelligent search, real time updates and advanced analytics. Scalability and performance of the system also have their problems. The Univentra proposed system addresses all these gaps and provides a complete, scaled out and easy to use solution.

III. PROBLEM STATEMENT

Many current practices in event management employed by different organizations are often not efficient enough because they involve manual processes or partial automation. Such an approach does not provide a unified system where data about events can be stored. In other words, all event-related

information is scattered across different channels, which makes it hard for users to find relevant information.

Moreover, the approval of an event requires time due to the need to submit paperwork physically and check it before the event starts. This process leads to delays and creates additional work for employees. Finally, there are no tools for effective communication between organizers and event participants.

One of the main problems that occur during event management is the lack of a registration system. It means that people need to fill out paperwork manually, which takes time and creates potential for errors. Moreover, it may be quite hard to control attendance since there are no ways to collect data from attendees efficiently.

IV. OBJECTIVES

The primary purpose of conducting the research is to design and develop a web-based system called the Event Management System that would automate all the processes relating to events at an institution. The system will help users to organize their events and participate in the events easily.

In addition to this, another purpose of developing the system is to ensure the easy usability of the system because, through designing an effective interface, navigation becomes very easy for all types of users. Besides, one other thing is to ensure accurate data through the process of minimizing human intervention in inputting data into the system.

Ensuring security through role-based access is another goal in developing the system. Also, the goal is to facilitate better communication between users by notifying them about the upcoming events.

V. PROPOSED SYSTEM

Univentra is a web-based software created to bring all event management activities into one single place. It provides its users with the opportunity to create, manage, and join various events using a convenient user interface.

There are different types of users who perform their specific tasks in the system. Thus, administrators are in charge of managing other users and approving events. Organizers must take care of creating new events and configuring them properly. In turn, participants have access to all events and may choose and register for those they like.

Another essential feature of the system is that it notifies users regarding any changes in events, registration, and scheduling of events in real time. Consequently, it facilitates better communication and cooperation between all parties involved.

Moreover, there is a filtering option that helps users search for events based on certain categories and dates. This function makes the use of the software more comfortable for users because they do not need to browse through all the options available to find what they need.

Finally, it should be noted that the software supports several events at once while keeping performance at a decent level.

VI. SYSTEM DESIGN

The system has been developed using the three-tier architecture model, which has separated the user interface, application logic, and data management layers. This approach helps in improving the performance and maintainability of the entire system.

The presentation layer acts as the interface that allows users to access the system through their web browsers. On top of the presentation layer lies the application layer, which receives requests from the users, performs business logic operations, and interacts with the database layer. The data layer is used to store all the information related to the system, such as user data, event data, and registration data.

The database is optimized in terms of data storage and retrieval operations by establishing a good relationship between entities. The database also has the ability to authenticate and authorize users for enhanced security of the data.

The working of the system involves authenticating users, determining roles, managing events, registering participants, and collecting feedback.

VII. METHODOLOGY

In addition, the prototyping model is the best strategy in developing a system whose needs may change over time as new requirements emerge. In the process of prototyping, developers develop a basic version of the software, evaluate its effectiveness, and continue improving it according to the needs of users and the

outcomes of the evaluation. The prototyping strategy creates an opportunity for constant interaction between users and developers, thereby facilitating the development of a system that corresponds to the user requirements.

To begin with, requirement analysis is conducted. It aims to identify the main shortcomings of previous systems and determine what functions should be incorporated in the new one. Thus, the new system must have the ability to create and organize events, approve them, provide for the participation of participants, notify about the organization of the event, and gather feedback on it.

In the next phase, the design of the system is created. In particular, during the design phase, all structural components of the system must be identified, including the design of a database and its structure, design of the user interface, and description of processes of the program. Particular attention must be paid to designing a convenient interface for the user. For instance, there must be an efficient relationship between users, events, and registration.

Then comes prototype development. At this stage, developers create the first working model of the software with the help of which they are able to test certain components. During the prototype development process, developers create functional features such as user authentication, creation of events, and registration of participants.

After creating the prototype, it needs to be tested and evaluated. First, it should be tested functionally for proper operation. Then, usability testing should be carried out to assess user satisfaction and ease of use. On the basis of user feedback, further adjustments need to be made.

Finally, implementation and monitoring take place. After being tested, the prototype becomes the working system that is put into operation. The system performance, its functionality, and usability are constantly monitored.

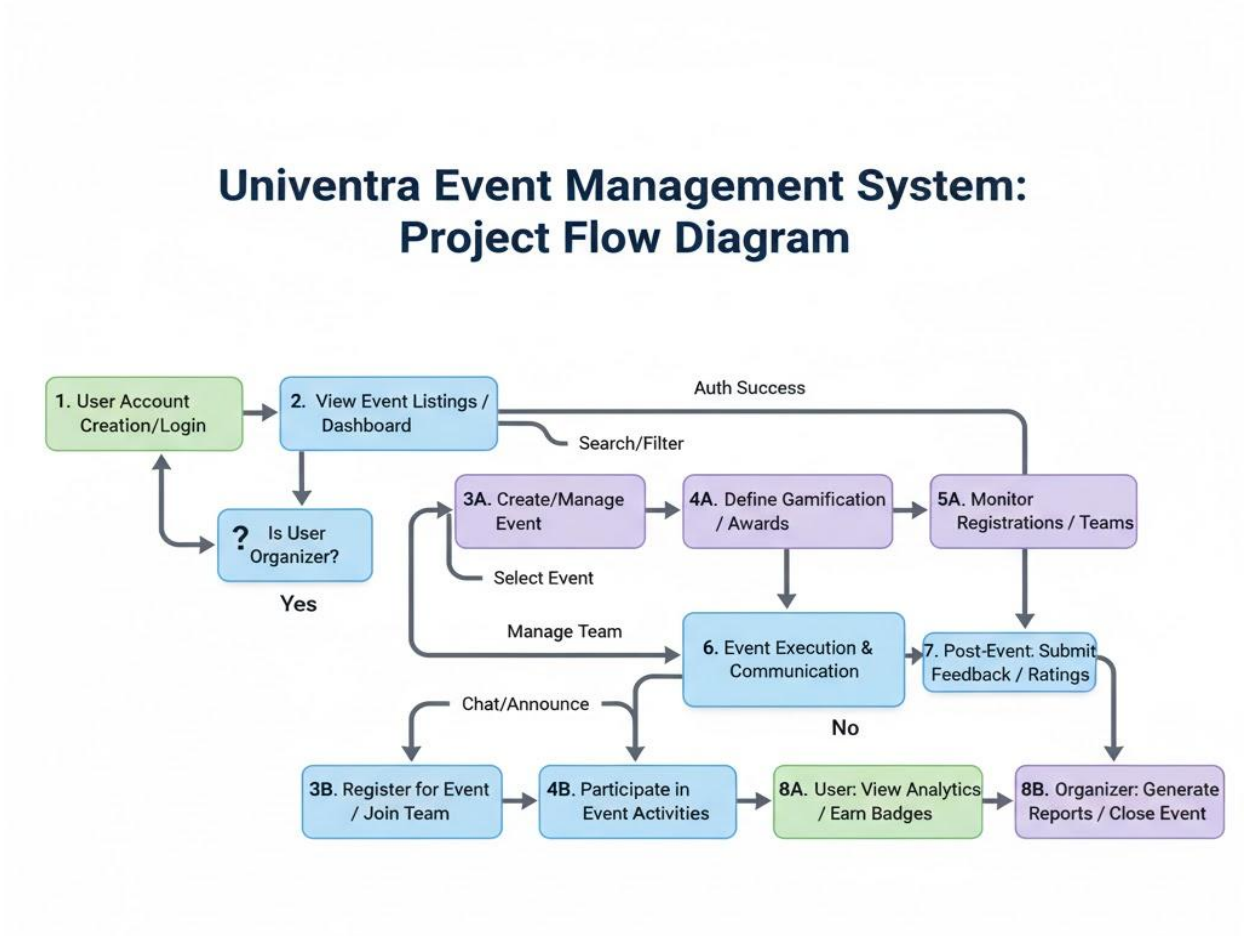

Fig. Project Flow diagram

VIII. RESULTS AND DISCUSSION

The implementation of Univentra marks an important step in enhancing the quality of academic event management systems through increased efficiency and dependability. First, the introduction of new features in the system decreases the time needed to perform critical operations. For example, event registration, approval, and creation become significantly faster when using the system instead of completing a set of operations manually.

Second, the database organization allows storing all relevant event information in a single place. As a result, data becomes easier to find and manage and less prone to errors due to repeated data input.

Finally, communication is improved since the system includes a notification function. Thus, all important information about the status of registration, change in schedule, or event approval can be immediately delivered to the corresponding users. This leads to higher engagement rates and increases participation in the events hosted at educational organizations.

Performance-wise, it is possible to claim that the system copes with multiple users' requests almost instantly. In other words, the system appears to be scalable, which is crucial for large institutions and high loads in terms of number of events and number of users.

User tests have proved that Univentra is easy to use. The user interface is intuitive and enables users to manage events and participate in them easily and fast.

In summary, the research findings prove that Univentra successfully resolves issues characteristic of traditional event management systems.

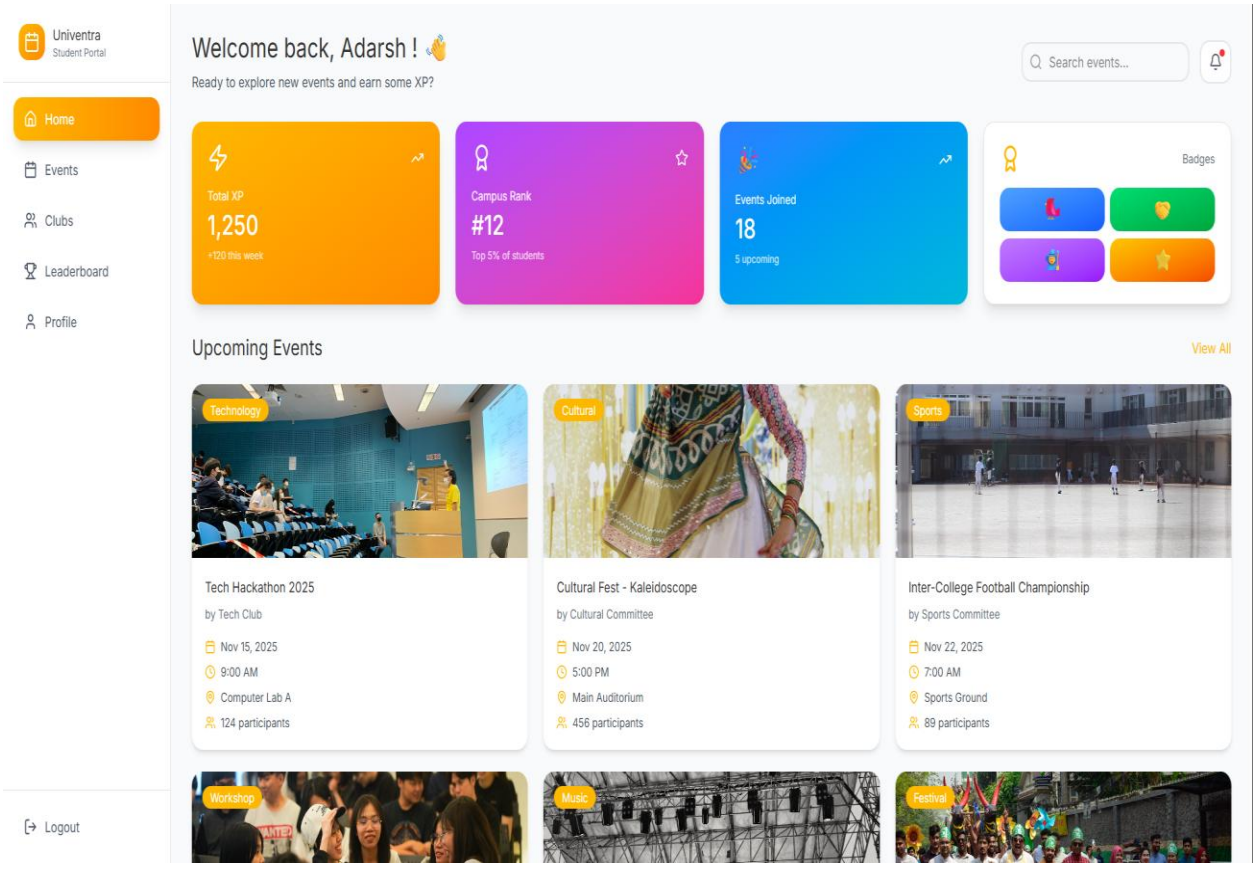

Fig. UI Design

IX. CONCLUSION

This research work will focus on introducing a new Event Management System called Univentra. This system is a comprehensive web-based application that aims at overcoming the inadequacies of conventional practices employed in event management within Higher Educational Institutions (HEIs).

One of the main advantages of this system is that it enables the automation of some of the critical procedures involved in event management. These include the approval of an event, participants' registration, and communication with stakeholders. Not only does this increase the speed of carrying out the procedures, but it also eliminates the chances of human errors during the process.

Access control is also one of the notable aspects of the system. Users with different roles have different access levels to various parts of the system. For example, event organizers cannot approve an event themselves, since this role has been reserved for administrators only.

Scalability and flexibility are other significant aspects of the system. The system can support multiple users and manage several events concurrently without experiencing any performance issues.

Real-time notification and feedback systems also help improve user engagement, thus making the system more appealing to end-users. This aligns well with the objective of digital transformation in HEIs, which is aimed at increasing efficiency and usability.

In summary, the proposed system is robust and capable of supporting both current and future needs of event management. Additionally, the system provides a platform for the incorporation of emerging technologies such as Artificial Intelligence to facilitate personalization.

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