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CAMPUS ACTIVITIES MANAGEMENT SYSTEM WITH SMS REMINDERS

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Key Words: *Aemilianum College Inc., Campus Activities Management, Campus Communication, Campus Events, Educational Technology, Event Management System, SMS Reminders*

Abstract

The study presents the development and implementation of a "Campus Activities Management System with SMS Reminders," aimed at streamlining the organization and communication of campus events. This system addresses the complexities involved in managing various student activities, ensuring that both organizers and participants are well-informed and engaged. By integrating SMS reminders, the system enhances the efficiency of event notifications, ensuring timely and effective communication across the campus community. The primary objective is to create a user-friendly platform that simplifies event management and boosts participation through reliable reminder services.

The system leverages a robust database to manage event details, schedules, and participant information. Organizers can easily create, update, and delete events, while students can browse and register for activities of interest. The SMS reminder feature is designed to send automated messages to registered participants, reducing the risk of missed events and enhancing overall attendance rates. This feature is particularly beneficial in a campus environment where students often juggle multiple commitments and may overlook important dates and deadlines.

A key component of this study involves evaluating the effectiveness of SMS reminders in improving event attendance and participant satisfaction. Surveys and usage data were collected from a sample of students and event organizers to assess the system's impact. Preliminary results indicate a significant increase in attendance rates and positive feedback regarding the convenience of SMS notifications. The system's intuitive interface and reliable messaging service have been highlighted as major strengths by users.

The "Campus Activities Management System with SMS Reminders" demonstrates a successful integration of event management and communication technologies within a university setting. By addressing the challenges of event organization and participant engagement, the system provides a comprehensive solution that enhances the overall campus experience. Future developments may include additional features such as mobile app integration and advanced analytics to further improve user engagement and event planning processes. The positive reception and measurable benefits of the system underscore its potential

for broader application in other educational institutions.

Introduction

Every time a college or university holds an event, numerous tasks must be managed, including planning, monitoring the plan, adhering to a strict budget, communicating event details to students, conducting registrations, sharing invitations, advertising among colleges, and sometimes dealing with the lack of live audience interaction. Students who stay engaged with college activities never miss the chance to represent their institution, and college events attract significant participation. It is essential that information about college clubs and their registration processes is readily accessible to students. Online communication is particularly useful for conveying urgent or vital messages to the students (P. Pabba et al., 2022).

Advanced computer technologies available today can play a crucial role in reorganizing school management activities to promote unity and reliability among students, parents, teachers, and school administrators. However, computers are not consistently used to analyze data and output information. Therefore, the e-School Management System (e-SMS) was developed to facilitate the management of school activities by teaching and administration staff in high schools, and to provide parents and teachers with timely and reliable information about student performance. In this paper, we propose a conceptual model of an e-school management system, explain the functionality of an e-SMS, and outline the benefits of electronic management. Insights and recommendations are also provided (M. Fetaji et al., 2013).

Mobile phones are now considered an essential part of people’s daily lives, used for communication and providing diversified information. The use of mobile phones extends beyond communication to include subscription to value-added services like disaster warnings, alert systems, and notifications. The development of the School Event Notification through SMS (SENT SMS) system is beneficial to students, teachers, and parents, enabling them to receive first-hand information from the school directly on their mobile phones. With SMS notifications, students will be informed about upcoming school events, changes in event schedules, and class suspensions due to bad weather. Teachers will receive notifications about meeting schedules, emergency meetings, and deadlines for requirements. Parents will also be informed about school activities and be aware of their children's activities in school (Lumauag R.G., 2016).

In an era where educational institutions increasingly recognize the pivotal role of extracurricular activities in shaping a holistic student experience, the Aemilianum College Inc. Office of Student Affairs endeavors to cultivate a vibrant and engaging campus environment. A cornerstone of this mission is the seamless organization and execution of a diverse array of student events, ranging from academic gatherings to cultural celebrations. However, the existing manual processes governing event management have proven to be a bottleneck, impeding the efficiency and fluidity required to orchestrate these multifaceted gatherings. This study embarks on a transformative journey to revolutionize the event management landscape at Aemilianum College Inc. Addressing the palpable challenges of the

current manual system—characterized by communication gaps, procedural delays, and a lack of centralized coordination—our study introduces an innovative Event Management System. Tailored explicitly for the unique needs of the Aemilianum College Inc. Office of Student Affairs, this comprehensive system integrates cutting-edge technologies, with a special focus on SMS notifications, to herald a new era of streamlined event orchestration. As the academic landscape embraces the digital age, the imperatives of efficient event management extend beyond logistical considerations. Our research delves into the intricate tapestry of challenges faced by the current system, illuminating the need for an automated solution that not only accelerates administrative processes but also fosters enhanced communication channels between event organizers, the Office of Student Affairs, and the student body.

Specific Objectives

Specifically, the study aims to:

1. To design and develop a Aemilianum College Inc Office of Student Affairs Event Management System with SMS Notification with the following features:
    - 1.1. User Management Module
        - 1.1.1. System that allows the administrator to register, login, update profiles, and manage their user account.
    - 1.2. Event Management Module
        - 1.2.1. System that allows users to create and manage school events and announcements which specify event details such as title, description, date, time, location and target audience (e.g., freshmen, seniors, faculty).
    - 1.3. Student Management Module
        - 1.3.1. System that allows users to manage student information.
    - 1.4. SMS Notification Module
        - 1.4.1. System that allows students to be notified through SMS regarding upcoming school events and announcements.
    - 1.5. Dashboard Module.
    - 1.6. Security Management Module
2. To evaluate the system using ISO 9126 in terms of:
    - 2.1. Functionality;
    - 2.2. Reliability;
    - 2.3. Usability;
    - 2.4. Efficiency;
    - 2.5. Maintainability;
    - 2.6. Portability.

Scope and Delimitation

The study titled "Campus Activities Management System with SMS Reminders" focuses on the development and implementation of a comprehensive event management system tailored for higher education institutions. The scope of this study includes the design, development, and evaluation of a software platform that facilitates the planning, organization, and communication of campus events. The

system is specifically designed to integrate SMS reminders, ensuring that students, faculty, and staff receive timely notifications about upcoming events, changes in schedules, and other important announcements.

The primary scope encompasses several key areas. Firstly, it includes event planning and scheduling, allowing event organizers to create, update, and manage event details such as date, time, location, and description. The system will also support the scheduling of recurring events and the coordination of multiple activities. Secondly, it involves registration and participation tracking, enabling students and staff to register for events through the platform, with the system tracking attendance and participation to provide organizers with valuable data for future planning. Thirdly, the study emphasizes the core feature of SMS notifications, which includes automated SMS reminders for event confirmations, reminders before the event, last-minute changes, and cancellations. This feature aims to enhance communication efficiency and ensure high levels of participation. Lastly, user accessibility is a focus, with the platform being accessible via web browsers and optimized for mobile devices, ensuring that users can interact with the system from various devices and locations.

The delimitation of this study includes specific boundaries. The system is designed specifically for higher education institutions, such as colleges and universities, and is not intended for use in primary or secondary schools, although the underlying concepts could be adapted for such contexts. The system will primarily utilize SMS technology for notifications, and while other communication methods such as email or in-app notifications could be integrated, they are not the primary focus of this study. The study and implementation will be conducted within a specific university or college, namely Aemilianum College Inc., and the findings and results may vary when applied to other institutions with different administrative structures and student demographics. Additionally, the system will adhere to standard data privacy and security protocols to protect user information, though the study will not delve deeply into the development of advanced security measures beyond what is necessary for functional operation and compliance with relevant regulations.

By defining the scope and delimitation, this study aims to provide a clear framework for the development and evaluation of the Campus Activities Management System with SMS Reminders. This ensures that the system meets the specific needs of the target institution while acknowledging the constraints and boundaries of the research.

Significance of the Study

Significant to the following:

Students. Will receive timely SMS notifications about campus events, ensuring they stay engaged and informed.

Event Organizers. Will simplify the planning, scheduling, and management of events while efficiently tracking participation.

Faculty and Staff. Will stay informed about relevant events and receive notifications about important meetings and deadlines.

Office of Student Affairs. Will streamline event coordination and enhance communication with students and staff.

Parents. Will receive updates about their children's involvement in campus activities, staying informed about key events.

College Administration. Will gain insights into student engagement, improving resource allocation and event planning.

Technical Support and IT Staff. Will manage and maintain the system, ensuring data privacy and supporting continuous improvement.

Prospective Students and Visitors. Will access information about campus activities, enhancing their perception of university life.

Gap Bridged by the Study

The study addressed several critical gaps in the current practices of event management within higher education institutions. Traditionally, campus event coordination had been hampered by manual processes, leading to inefficiencies, communication gaps, and low engagement rates among students. These manual processes often resulted in missed notifications, poor attendance, and logistical challenges that hindered the smooth execution of events.

This study bridged these gaps by introducing a digital solution that automated and streamlined event management processes. The integration of SMS reminders ensured that students and staff received timely and accurate information about campus activities, significantly reducing the likelihood of missed events and last-minute confusion. By leveraging advanced computer technologies, the system enhanced the planning, scheduling, and execution of events, making these processes more efficient and reliable.

Furthermore, the study addressed the gap in accessibility and user engagement by providing a platform that was easily accessible via web browsers and mobile devices. This ensured that all stakeholders, including students, faculty, staff, and parents, could interact with the system conveniently, regardless of their location or device. The automated SMS notifications served as a proactive communication tool, keeping everyone informed and engaged in campus life.

The system bridged the gap between traditional, cumbersome event management practices and a modern, efficient digital solution. It enhanced communication, boosted participation, and fostered a more vibrant and well-organized campus environment, thereby addressing the critical needs of higher education institutions in managing their extracurricular activities.

Methodology

The methodology used in the development of the "Campus Activities Management System with SMS Reminders" was Rapid Application Development (RAD). This approach emphasizes quick and iterative development cycles, enabling faster delivery of functional software. The first phase, Requirements Planning, involved extensive consultations with stakeholders, including students, faculty, event organizers, and the Office of Student Affairs. During this phase, the team gathered detailed information about the current challenges in event management, the specific needs for SMS notifications, and the desired features and functionalities of the new system. This comprehensive planning ensured that the project was aligned with the users' needs and institutional goals from the outset.

The second phase, User Design, focused on creating prototypes and mockups of the system based on the requirements

gathered. This phase was highly interactive, with users providing continuous feedback on the design and functionality of the prototypes. Through iterative sessions, the design was refined to ensure it was user-friendly, accessible, and effectively met the users' needs. The involvement of end-users in this phase was crucial for validating the design choices and ensuring that the final product would be well-received and easy to use.

The third phase, Rapid Construction, involved the actual coding and development of the system. Using the validated designs from the User Design phase, the development team quickly built the core components of the system. This phase included the integration of SMS functionality, the development of the event scheduling and registration modules, and the creation of the user interface. The iterative nature of RAD allowed for continuous testing and feedback, enabling the team to address issues and make improvements on the fly. This phase ensured that a functional version of the system was developed rapidly, allowing for early testing and user validation.

The final phase, Cutover, encompassed the transition from the development environment to the live operational environment. This phase included comprehensive testing, user training, and system deployment. The team conducted thorough testing to ensure that all features worked as intended and that the system was stable and secure. Training sessions were held to familiarize users with the new system, ensuring a smooth transition and minimal disruption. Once testing and training were complete, the system was deployed for use, marking the culmination of the development process. This phase ensured that the system was fully operational and that users were prepared to leverage its capabilities effectively.

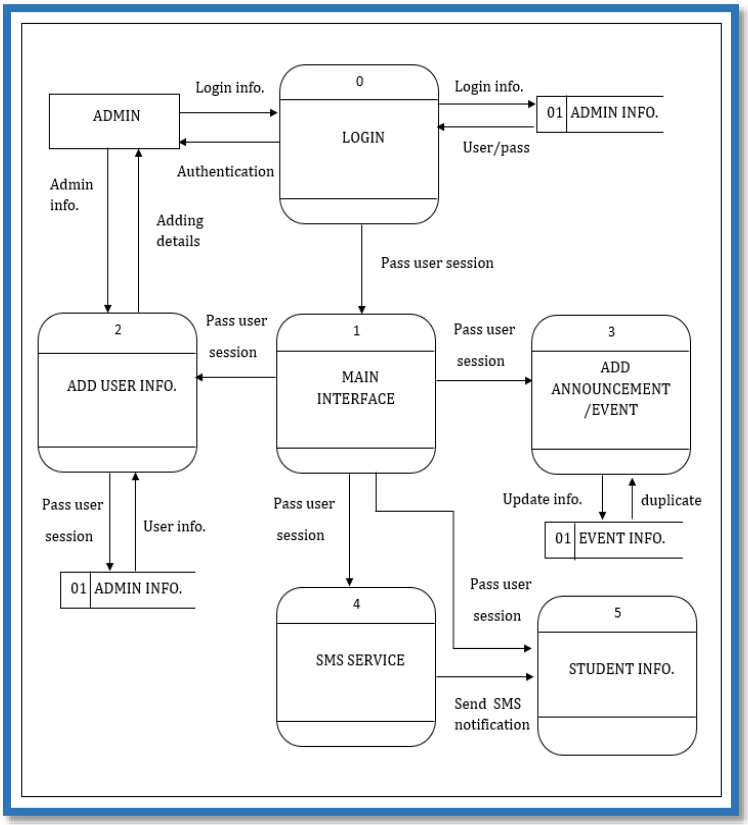

Figure 1 - The Data Flow Diagram of the Developed System (Admin/user)

The Data Flow Diagram (DFD) of the developed "Campus Activities Management System with SMS Reminders" illustrates the flow of information between various components of the system. At the highest level, the DFD shows the interaction between users (students, faculty, and event organizers) and the system. Users input event details, registration information, and preferences into the system, which processes this data through several modules, including event scheduling, participant tracking, and SMS notification generation. The system then outputs automated SMS reminders and updates to users, ensuring they receive timely notifications about upcoming events and any changes. The DFD effectively captures the flow of data from user inputs to system processes and outputs, highlighting the streamlined communication and efficient management of campus activities.

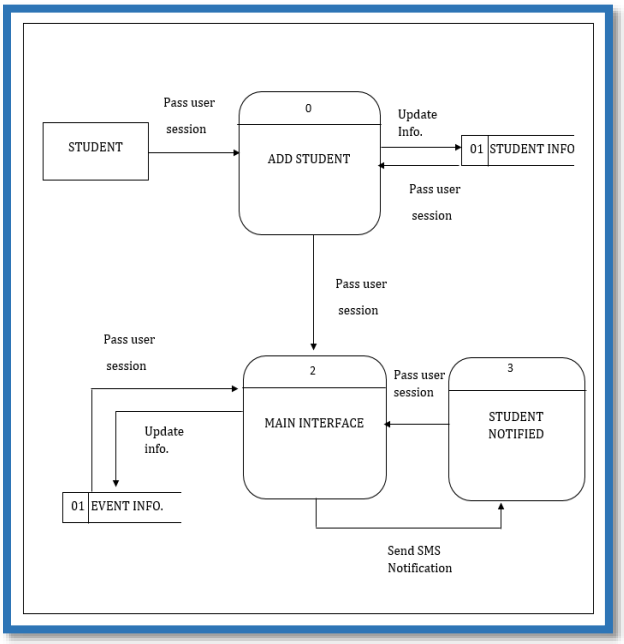

Figure 2 - The Data Flow Diagram of the Developed System (Student)

Figure 2, the Data Flow Diagram (DFD) of the Developed System (Student), provides a comprehensive visual representation of how students interact with the developed system. It depicts the flow of information between the student users and the various modules of the system. Students input their event preferences, registration details, and contact information into the system, initiating the data flow. This information is then processed by the system, which includes modules for event scheduling, registration management, and SMS notification generation. The system outputs automated SMS reminders and event confirmations to students, ensuring they

receive timely updates about campus activities. The DFD effectively captures the interaction between students and the system, illustrating how data flows through the different components to facilitate efficient event management and communication.

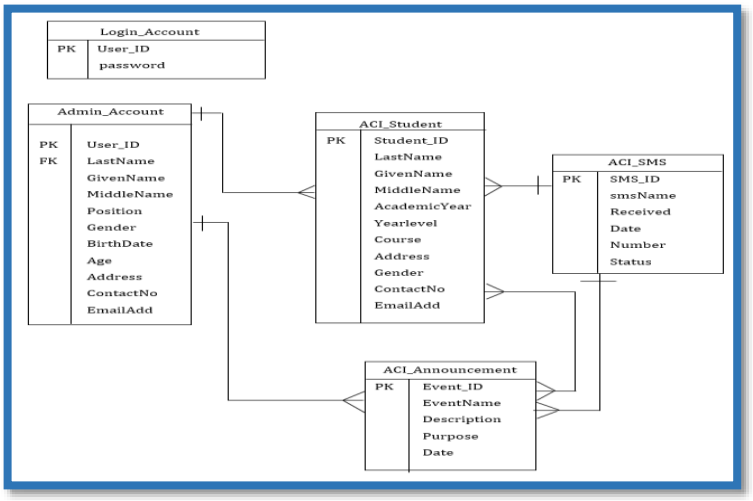

Figure 3 - Entity Relationship Diagram of the Developed System

Figure 3, the Entity Relationship Diagram (ERD) of the Developed System, offers a structured visualization of the relationships between the various entities within the "Campus Activities Management System with SMS Reminders." The ERD outlines the entities involved in the system, such as students, events, registrations, and SMS notifications, and illustrates the relationships between these entities. For instance, the diagram demonstrates that students can participate in multiple events, while each event can have multiple participants. Additionally, it showcases how event registrations are linked to specific students and events, ensuring accurate tracking of participation. Moreover, the ERD depicts the association between events and SMS notifications, indicating that notifications are generated based on event details and sent to registered participants. Overall, Figure 3 provides a clear and concise overview of the entity relationships within the system, aiding in understanding the data structure and facilitating efficient database management.

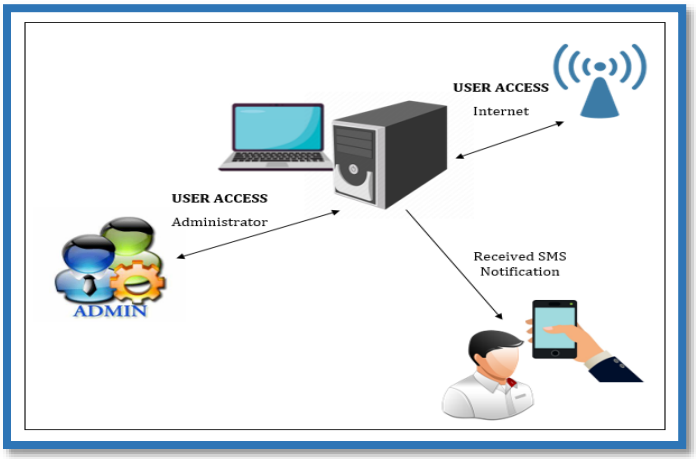

Figure 4 - System Architecture of the Developed System

Figure 4, the System Architecture of the Developed System, presents a structured overview of the technical framework underlying the developed system. It outlines the various components and layers involved in the system's architecture, delineating their interactions and functionalities. At the core of the architecture lies the application layer, which comprises the system's software components responsible for event management, user authentication, SMS integration, and database interaction. Surrounding the application layer are the presentation layer, responsible for user interface rendering and interaction, and the data layer, housing the system's database where event details, user information, and SMS logs are stored. Also, the architecture depicts the integration points with external systems, such as SMS gateways for sending notifications and authentication services for user validation. The System Architecture diagram provides a comprehensive understanding of the system's technical infrastructure, facilitating effective system design, development, and maintenance.

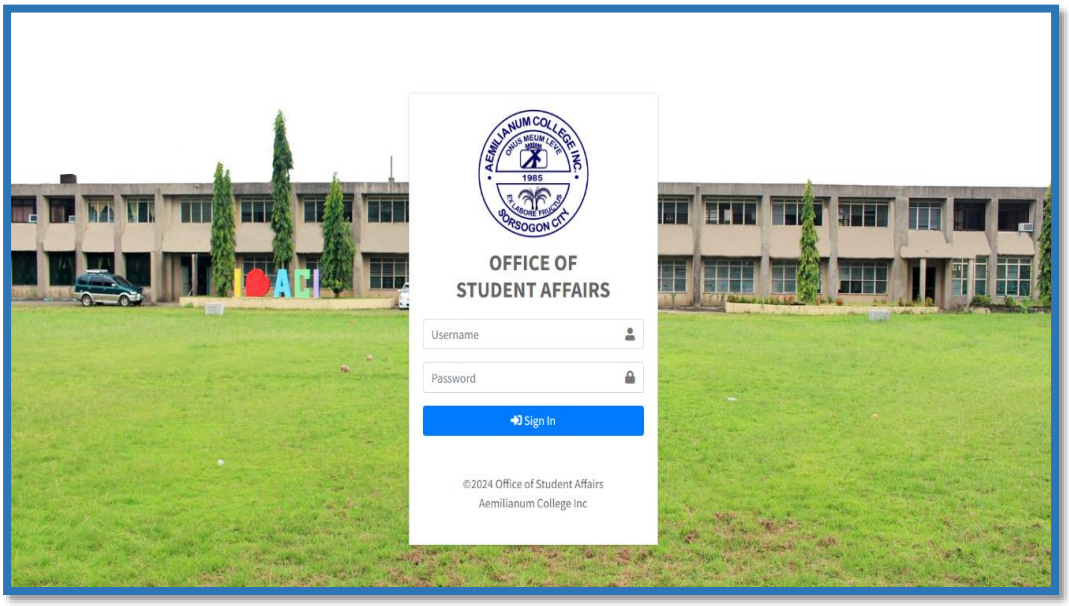

Figure 5 - User Login Module

Figure 5, the User Login Module, provides a concise visual representation of the login process within the developed system. It illustrates the steps involved in user authentication, starting from the user's input of credentials (username and password) through the presentation layer. The system then verifies the credentials against stored user data in the database, utilizing the authentication service. If the credentials are valid, the system grants access to the user, allowing them to proceed to the system's

functionalities. Conversely, if the credentials are incorrect or invalid, the system denies access and prompts the user to retry or reset their password. This module serves as the initial gateway for users to access the system securely and efficiently, enhancing system security and user experience.

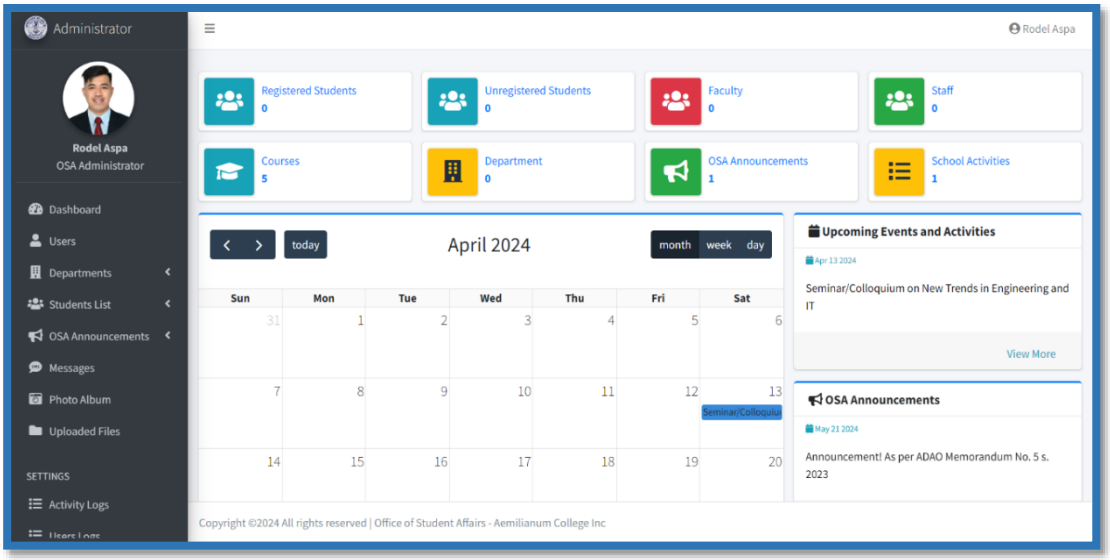

Figure 6 - Main Menu or Main Interface Module

Figure 6, the Main Menu or Main Interface Module, offers a concise depiction of the central hub within the developed system. It provides users with an intuitive and navigable interface to access various functionalities and features of the system. The main menu module serves as the primary gateway for users to interact with the system, presenting options for event browsing, registration, profile management, and communication preferences. Through this module, users can easily navigate the system and access relevant information and actions related to campus activities. The design of the main interface prioritizes user experience and efficiency, enabling seamless interaction and engagement with the system's capabilities.

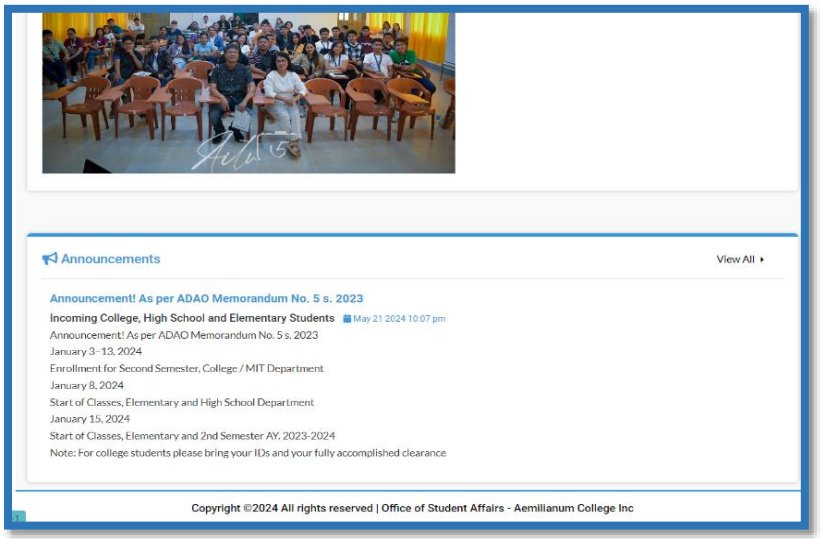

Figure 7 - Sample Announcement Module

Figure 7, the Sample Announcement Module, offers a concise representation of how announcements are displayed within the developed system. This module serves as a central location for administrators or authorized users to create and publish announcements regarding upcoming events, important reminders, or general notifications. The interface provides fields for entering announcement details, such as the title, description, and date of publication. Users can then preview the announcement before publishing it to ensure accuracy and relevance. Once published, the announcement is displayed prominently within the system's interface, ensuring that users are promptly informed of any updates or important information. This module facilitates effective communication between administrators and system users, enhancing engagement and participation in campus activities.

Findings

The following findings were obtained from the study:

1. The findings of the developed system reveal a successful implementation of key features. The User Management Module enables administrators to efficiently register, login, update profiles, and manage user accounts. The Event Management Module empowers users to create and manage school events and announcements, specifying essential details such as title, description, date, time, location, and target audience. The Student Management Module facilitates effective management of student information. The SMS Notification Module ensures timely communication with students regarding upcoming school events and announcements. The Dashboard Module provides users with a comprehensive overview of key information and metrics, while the Security Management Module ensures the integrity and confidentiality of user data through robust security measures. Overall, the system effectively meets the designated requirements, enhancing event management, communication, and user engagement within the Aemilianum College Inc. Office of Student Affairs.

2. The evaluation of the system using ISO 25010 standards reveals commendable performance across various dimensions. In terms of functionality, the system demonstrates robust capabilities, effectively fulfilling user requirements such as event management, user registration, and SMS notifications. Reliability is upheld through consistent performance and accurate delivery of notifications, enhancing user trust. Usability is high, with an intuitive interface facilitating easy navigation and interaction. Efficiency is evident in the system's quick response times and streamlined processes, contributing to enhanced productivity. Maintainability is ensured through well-structured code and modular design, facilitating future updates and modifications. Portability is achieved through compatibility with multiple devices and operating systems, ensuring

accessibility across diverse environments. Overall, the system exhibits strong adherence to ISO 25010 standards, delivering a reliable, user-friendly, efficient, maintainable, and portable solution for event management within the Aemilianum College Inc. Office of Student Affairs.

Conclusions

The conclusion drawn from the findings were the following:

1. The findings of the developed system highlight its successful implementation and effectiveness. The comprehensive suite of modules, including User Management, Event Management, Student Management, SMS Notification, Dashboard, and Security Management, collectively contribute to enhanced event management, communication, and user engagement. The system's robust features and functionalities empower administrators and users alike, facilitating efficient registration, event creation, student information management, timely communication, data visualization, and security enforcement. Overall, the system serves as a valuable tool for optimizing the management of campus activities and fostering a cohesive and engaging campus environment.

2. The evaluation of the system based on ISO 25010 standards underscores its commendable performance across various dimensions, including functionality, reliability, usability, efficiency, maintainability, and portability. The system demonstrates robust functionality, effectively fulfilling user requirements and facilitating seamless event management and communication. Its reliability is evident through consistent performance and accurate delivery of notifications, instilling trust among users. Usability is high, with an intuitive interface enhancing user experience and productivity. Efficiency is achieved through streamlined processes and quick response times, contributing to enhanced operational efficiency. Maintainability is ensured through well-structured code and modular design, facilitating future updates and modifications. Moreover, the system's portability enables accessibility across diverse environments, ensuring its usability across different devices and operating systems. Overall, the system's adherence to ISO 25010 standards validates its reliability, user-friendliness, efficiency, maintainability, and portability, underscoring its suitability as a robust solution for event management within the Aemilianum College Inc. Office of Student Affairs.

Recommendations

Based on the conclusions, the recommendations were the following:

1. While the current system demonstrates robust functionality and performance, there is always room for improvement and enhancement. Regular feedback from users, administrators, and stakeholders should be solicited to identify areas for refinement and new features that could further enhance the system's capabilities. Continuous iteration and updates will

ensure that the system remains aligned with evolving user needs and technological advancements, maximizing its value and utility over time.

2. Despite the system's high usability, providing comprehensive user training and ongoing support is essential to maximize user adoption and satisfaction. Training sessions should be conducted to familiarize users with the system's features and functionalities, highlighting best practices for efficient utilization. Additionally, a dedicated support team should be established to address user queries, troubleshoot issues, and provide timely assistance as needed. By investing in user training and support, the institution can ensure that the system is utilized to its fullest potential, maximizing the benefits derived from its implementation.

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