

**UNIVERSITY OF EASTERN AFRICA, BARATON**

**SCHOOL OF BUSINESS**

**DEPARTMENT OF INFORMATION SYSTEMS AND COMPUTING**

**A PROBLEM STATEMENT PRESENTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS OF THE COURSE:**

**INSY492: SENIOR PROJECT**

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**PROBLEM STATEMENT**

In educational institutions, extracurricular activities significantly contribute to students' holistic development as set in the school motto: spiritual, physical, mental. However, many students fail to participate due to a lack of accessible information on how to get involved. Additionally, tracking participation, monitoring attendance, managing event schedules, and providing volunteering opportunities remain challenging tasks. Traditional methods, such as manual registration and paper-based tracking, are inefficient, error-prone, and do not provide a centralized platform to disseminate information, leading to missed opportunities for student engagement.

**OBJECTIVES**

* Develop a system to accurately record student participation in various extracurricular activities and implement a reliable attendance monitoring mechanism to track engagement.
* Highlight upcoming events, enabling students to stay informed, plan accordingly, and register easily.
* Provide students with access to volunteering positions, fostering community involvement and facilitating hands-on experiences.
* Offer detailed reports to administrators, facilitating data-driven decisions on student engagement and resource allocation.

**PROPOSED FEATURES**

**Student Dashboard:** Enables students to:

* View participation history and attendance records.
* Access information on upcoming events.
* Volunteer for various opportunities that arise from the events.

**Event Management Module:** Facilitates:

* Creation, scheduling, and promotion of extracurricular events by administrators and instructors.
* Registration and receiving reminders for events.

**Attendance Tracking System:** Allows:

* Instructors and administrators to accurately record attendance using QR codes or biometric verification.
* The system to generate detailed attendance reports for both individual and group activities.

**Volunteering Module:**

* List available volunteering positions with descriptions and requirements.
* Allow students to apply and track their volunteering hours.

**Admin Dashboard:**

* Manage activities, events, and volunteering opportunities.
* Monitor student participation and generate analytical reports.

**COMPARISON WITH EXISTING SYSTEMS:**  
Current solutions often rely on disparate tools such as email announcements, school websites, and fragmented mobile apps to communicate event details and manage registrations. These systems typically lack integration, resulting in inconsistencies between the information provided and the actual tracking of student involvement. Unlike these approaches, the proposed system offers a unified platform that consolidates event scheduling, attendance tracking, and participation history. This integration ensures that students have timely and clear information on extracurricular opportunities, while administrators benefit from efficient management and comprehensive reporting.

**UNIQUENESS AND BENEFITS**

The proposed system distinguishes itself by:

* Centralizing management of extracurricular activities, reducing administrative workload.
* Providing real-time updates on event schedules and volunteering opportunities.
* Enhancing student engagement through reminders and personalized event recommendations.
* Offering comprehensive analytics to assess participation trends and make informed decisions.

**MODULES**

1. **User Management Module:**

* Allows students, administrators, and event coordinators to register, log in, and manage their profiles with role-based access control.

1. **Student Dashboard Module:**

* Allows students to view their participation history, attendance records, and upcoming events, while providing notifications on new extracurricular opportunities.

1. **Event Management Module:**

* Allows event coordinators to create, schedule, and promote extracurricular events, and allows students to register for events seamlessly.

1. **Attendance Tracking Module:**

* Allows instructors and administrators to record attendance through digital check-ins such as QR codes or biometric verification, generating detailed attendance reports.

1. **Volunteering Module:**

* Allows students to view and apply for available volunteering opportunities and enables tracking of volunteering hours and progress.

1. **Notification Module:**

* Allows the system to send timely alerts and reminders about upcoming events, changes in schedules, or new opportunities.

1. **Analytics Module:**

* Allows administrators to generate comprehensive reports and dashboards, enabling data-driven decision-making regarding student engagement and resource allocation.

**TECH STACK**

* **Frontend:**
  + Developed using Flutter to ensure a consistent, cross-platform user experience on both web and mobile devices.
* **Backend:**
  + Built using Django to manage API requests, system logic, and server-side functionalities.
* **Database:**
  + Utilizes MySQL for relational data management, ensuring data integrity, scalability, and performance.
* **Authentication:**
  + Implements Firebase Authentication to securely handle user sign-ins and role-based access, supporting multiple methods including email/password and social logins.
* **Security:**
  + Uses HTTPS for secure API communication and secure storage solutions to protect sensitive user data.

In conclusion, leveraging a modular architecture paired with a robust tech stack, this system overcomes the inefficiencies of manual tracking and fragmented management by accurately recording participation, managing events, and providing accessible information. In doing so, it fosters increased student engagement in extracurricular activities, enhances organizational efficiency, and supports holistic student development.

**REFERENCES**

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