THE ALUMNI INFORMATION MANAGEMENT SYSTEM

CASE STUDY: BUSITEMA UNIVERSITY

BY

AHEBWA DAVIS

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FACULTY OF SCIENCE AND EDUCATION

DEPARTMENT OF COMPUTER STUDIES

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SUPERVISORS

DR. ANGOLE RICHARD

MR. MUSANA EDDIE

AUGUST, 2026.

DECLARATION

I, **AHEBWA DAVIS**, do hereby declare that this dissertation is a result of my own effort and has not been submitted to any institution of higher learning before for an academic award and should not be reproduced without my consent.

Sign: _____ **Date:** 28/08/2026

AHEBWA DAVIS

BU/UP/2023/1600

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SUPERVISOR'S APPROVAL

This study project titled, **THE ALUMNI INFORMATION MANAGEMENT SYSTEM**, has been done under my supervision as the university supervisor and submitted with my approval.

Sign: _____

DR. ANGOLE RICHARD

SUPERVISOR

Date: 31/08/2026

Sign: _____

MR. MUSANA EDDIE

SUPERVISOR

Date: 28/08/2026

DEDICATION

I thank the Almighty God who has successfully enabled me to complete this research and the entire course with the dissertation. In a special way, I dedicate this project to my entire family members especially my parents for their entire efforts in this journey and the entire family of the Lt. Ezania Kaseene for their kind, loving and prayerful hearts. my supervisors, Dr. Angole Richard and Mr. Musana Eddie, and finally to my fellow colleagues who have tried their level best to bring me up to this far morally and this has been the source of courage and inspiration throughout this school life. It has all been your encouragement and teamwork that gave me an inspiration to keep me going. This work is a manifestation of your prayers and hard work, may the Almighty God bless you all.

ABSTRACT

This study focused on the design and development of an Alumni Information Management System (AIMS) for Busitema University to address challenges associated with manual and fragmented alumni data management. The study was motivated by the lack of a centralized platform for storing, updating, and utilizing alumni information, which has led to inefficiencies in communication, data retrieval, and graduate tracking.

The research adopted a descriptive and system development approach, utilizing the Rapid Application Development (RAD) model to ensure iterative design and user involvement. Data was collected from university administrators, ICT staff, and alumni using questionnaires and interviews. Both qualitative and quantitative analysis techniques were employed to identify system requirements

The proposed system was designed as a web-based application using HTML, CSS, JavaScript, PHP, and MySQL. It provides functionalities such as alumni registration, profile management, data storage, search capabilities, reporting, and communication features. The system architecture follows a client-server model, ensuring scalability, reliability, and accessibility. Findings revealed that the existing system was inefficient due to manual processes, data redundancy, and lack of real-time updates. The developed system addressed these challenges by providing a centralized, secure, and user-friendly platform for managing alumni data. System testing and validation confirmed that the AIMS meets both functional and non-functional requirements. The study concludes that implementing the system will improve alumni engagement, enhance data accuracy, and support institutional decision-making.

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LIST OF ACCRONYMS

AIMS	Alumni Information Management System
CSS	Cascading Style Sheets
DBMS	Database Managemnet System
DFD	Data Flow Diagram
ERD	Entity Relationship Diagram
HTML	Hyper Text Markup Language
MySQL	My Structured Query Language
PHP	Hypertext Preprocessor
RAD	Rapid Application Development
SQL	Structured Query Language
XAMPP	Cross-Platform Apache server, MySQL, PHP, Perl Programming language.

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CHAPTER ONE: INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Globally, universities recognize alumni as valuable stakeholders who contribute to institutional growth through mentorship, networking, research collaboration, advocacy, and financial support. The advancement of Information and Communication Technologies (ICTs) has transformed how institutions manage alumni information, shifting from manual record-keeping methods such as paper files and spreadsheets to computerized systems that enable efficient data storage, retrieval, communication, and decision-making. Alumni Information Management Systems (AIMS) have become essential tools for maintaining accurate graduate records, strengthening alumni engagement, supporting fundraising initiatives, and enhancing institutional visibility and development (Freeman, 1984; Laudon & Laudon, 2020; Rowley, 2003; Weerts & Ronca, 2007).

Despite these advancements, many universities in developing countries still rely on fragmented and manual methods of managing alumni records, resulting in poor communication, outdated information, and limited graduate tracking. In Uganda, alumni information management remains inadequately digitized in many institutions, including Busitema University. Consequently, there is a need for a centralized Alumni Information Management System to improve alumni engagement, graduate tracking, and institutional planning (Altbach & Salmi, 2011; Schomburg, 2003; NCHE, 2023).

1.2 Problem statement

Despite the growing importance of alumni engagement in higher education institutions, many universities, including Busitema University, still use fragmented and manual systems to manage alumni information, which leads to challenges such as poor communication, outdated records, and difficulty in tracking graduates. These limitations reduce the effectiveness of alumni engagement and make it hard to support institutional planning, graduate tracking, and decision-making processes (Schomburg, 2003; Laudon & Laudon, 2020).

Most educational institutions still rely on manual methods to manage alumni data, leading to inefficiencies in retrieval and communication (Wanyenya, 2023).

At Busitema University, alumni data is scattered across departments, lacks regular updates, and is not centrally managed, making retrieval and communication inefficient. This weakens alumni engagement and limits opportunities for mentorship, networking, and institutional support. Therefore, there is a need to develop a centralized Alumni Information Management System to address these challenges and improve data management and institutional efficiency (Weerts & Ronca, 2007; NCHE, 2023).

1.3 Objectives of the Study

1.3.1 General Objective

To develop an Alumni Information Management System to enhance alumni data management and engagement at Busitema University.

1.3.2 Specific Objectives

1. To review literature and gather the requirements for developing the Alumni Information Management system.
2. To analyze the data and design a centralized Alumni Information Management System.
3. To develop and implement the Alumni Information Management system.
4. To test and validate the Alumni Information Management system.

1.4 SIGNIFICANCE OF THE STUDY

The study is significant to different stakeholders:

1.4.1 Busitema University Administration

The system will provide reliable and centralized alumni data for planning, policy formulation, and decision-making. It will also support institutional development initiatives such as fundraising, partnerships, and program evaluation.

1.4.2 Alumni

The system will create a platform for alumni to update their profiles, network with fellow graduates, and stay informed about university activities, opportunities, and events.

1.4.3 Students

Current students will benefit from mentorship opportunities, career guidance, and networking with alumni through the system.

1.4.4 Future researchers

The study will provide useful reference material for future researchers interested in Alumni Information Management Systems and the use of information and communication technologies in higher education institutions. It will provide a foundation for further studies on improving alumni data management, graduate tracking, alumni engagement, and institutional communication. Future researchers may also use the findings, system design, database structure, and development approach of this study to develop more advanced and integrated alumni management solutions. In addition, the study will provide a basis for further research on integrating alumni systems with other institutional databases, mobile applications, data analytics, and job placement services.

1.5 Scope of the study

1.5.1 Content Scope

The AIMS focuses on:

1. Alumni registration and profile updates.
2. Centralized alumni database management.
3. Searchable alumni directory.
4. Communication tools (e.g., notifications, event updates, links to external platforms).
5. Networking and mentorship features.
6. Resource mobilization channels for financial and material contributions.
7. Alumni recognition and achievements showcase.

However, the system will not initially cover job placement services or replace informal social media groups, but will serve as the official alumni management platform for the campus.

1.5.2 Time Scope

The study was done in a period of five(5) months that is from January 2026 to June 2026 during which all phases like **requirements gathering, system development, testing and validation were carried out.**

The study covers cover alumni from the establishment of Busitema University to the present day.

Priority given to digitizing records from 2007 onwards (when Busitema was chartered), with earlier data incorporated gradually where available and if possible.

The system is to be updated annually to capture new graduates and maintain continuity.

1.5.3 Geographical Scope

The system focuses entirely to Busitema University across all campuses.

It caters to alumni within Uganda and the global diaspora, ensuring accessibility regardless of the location.

1.6 Definition of key terms

Alumni: Graduates of an academic institution.

Information Management System: A digital system used to collect, process, store, and retrieve information.

Alumni Information Management System: A computerized system designed to manage alumni records, communication, and engagement activities.

Database: An organized collection of structured data stored electronically.

CHAPTER TWO: LITERATURE REVIEW

2.1 INTRODUCTION

This chapter reviews existing literature related to Alumni Information Management Systems (AIMS), focusing on concepts, theoretical perspectives, existing systems, technological approaches, and identified gaps. The review provides a foundation for the design and development of a system suitable for managing alumni information at Busitema University.

2.2 Concept of Alumni Information Management Systems

An Alumni Information Management System is a computerized platform designed to collect, store, manage, update, and retrieve alumni data for institutional use. It supports communication, networking, tracking graduate outcomes, and strengthening relationships between institutions and former students. (Laudon & Laudon, 2020).

Information systems are defined as organized combinations of people, hardware, software, communication networks, and data resources that collect, transform, and disseminate information in organizations (Laudon & Laudon, 2020). Such systems support institutional communication, fundraising, networking, and graduate employability monitoring (Rowley, 2003; Dai & Lan, 2017).

Modern alumni information systems increasingly incorporate web-based technologies, cloud computing, and data analytics to improve efficiency and accessibility (Kherani et al., 2025).

Globally, universities have adopted alumni information systems to enhance graduate engagement, strengthen institutional branding, support fundraising initiatives, and monitor graduate outcomes (Rowley, 2003). These systems maintain comprehensive databases containing alumni contact details, employment history, academic achievements, professional progress, and societal contributions.

Higher education institutions worldwide have adopted alumni information systems to improve graduate engagement, support fundraising initiatives, and enhance institutional visibility. These systems allow institutions to maintain updated databases of graduates, including contact information, career progress, achievements, and contributions to society.

2.3 Importance of Alumni Information Management

Effective alumni information management significantly contributes to institutional development and sustainability. Universities use alumni data to track employability trends, identify skills gaps, and evaluate the relevance of academic programs to labor market demands (Schomburg, 2003). Alumni networks also provide mentorship opportunities, internships, and career guidance for current students.

Alumni networks provide mentorship, internship placements, guest lectures, and career guidance for current students. According to Freeman (1984), organizations must actively manage relationships with key stakeholders to ensure long-term success. Alumni are critical stakeholders in higher education institutions, and structured information management enhances engagement and collaboration.

Institutions with structured alumni databases are better positioned to mobilize financial support, partnerships, and research collaborations. Alumni often serve as ambassadors, promoting the reputation and visibility of their former institutions.

Successful alumni serve as ambassadors who enhance institutional visibility and reputation within society (Weerts & Ronca, 2007).

2.4 THEORETICAL REVIEW

2.4.1 Information Systems Theory

Information Systems Theory explains how organizations use technology to collect, process, store, and distribute information for decision-making. Alumni information systems fall under management information systems, which aim to improve organizational efficiency and communication. According to Laudon and Laudon (2020), management information systems improve coordination, efficiency, and strategic planning within organizations.

Information Systems Theory emphasizes the integration of people, processes, technology, and data to support organizational goals and decision-making (Laudon & Laudon, 2020). Effective information systems improve efficiency, communication, and organizational performance through timely access to information (O'Brien & Marakas, 2011).

2.4.2 Stakeholder Theory

Stakeholder Theory, developed by Freeman (1984), argues that organizations must consider the interests of all stakeholders who affect or are affected by organizational activities. Stakeholder theory identifies alumni as key stakeholders in higher education institutions. Universities must engage alumni to sustain institutional development, enhance learning experiences, and promote long-term relationships.

Stakeholder Theory argues that organizations should create value for all stakeholders who influence or are influenced by organizational activities (Freeman, 1984). Universities that actively engage alumni stakeholders tend to experience stronger institutional support and long-term sustainability (Weerts & Ronca, 2007).

2.4.3 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) explains how users adopt new technologies based on perceived usefulness and perceived ease of use (Davis, 1989). Perceived usefulness refers to the degree to which a person believes that using a system enhances performance, while perceived ease of use relates to the degree to which a system is free from effort.

For an Alumni Information Management System to succeed, administrators and alumni must perceive it as beneficial, user-friendly, and accessible. Systems that are complex or unreliable are likely to face resistance and low adoption rates (Davis, 1989). Perceived usefulness and perceived ease of use are significant determinants of technology adoption among users (Davis, 1989). User-friendly systems are more likely to achieve high acceptance rates and sustained usage among stakeholders (Venkatesh & Davis, 2000).

2.5 Existing Alumni Management Systems

Globally, universities have implemented various alumni management systems to strengthen graduate relations. Many institutions in developed countries use integrated enterprise platforms and institution-developed portals that provide centralized databases and analytics dashboards (Rowley, 2003).

Some universities have adopted cloud-based alumni platforms to improve accessibility and scalability. These systems allow alumni to update their information remotely and participate in networking and mentorship programs.

Web-based alumni management systems facilitate efficient communication, event management, networking, and information sharing among graduates (Dai & Lan, 2017). Cloud-based alumni systems enhance accessibility, scalability, and data security while reducing operational costs (Kherani et al., 2025).

2.6 Gaps in existing systems

Despite technological advancements, several gaps remain for example:

1. Fragmented data management: Alumni records are often scattered across departments.
2. Limited automation: Many systems lack real-time updating and reporting features.
3. Low alumni participation: Poor user interfaces discourage engagement.
4. Inadequate funding: Limits system development and maintenance.
5. Data security concerns: Weak protection mechanisms expose alumni information.
6. Lack of integration: Systems do not connect with institutional databases such as academic records.

These gaps highlight the need for a localized and context-sensitive system that addresses institutional challenges.

2.7 Alumni Information Management in Ugandan Universities

In Uganda, most universities still rely on manual and semi-digital methods for managing alumni data. Records are commonly kept using spreadsheets, paper files, and departmental databases, leading to duplication and inconsistency. Some universities have however come up with different systems to link up the institutional Alumni.

2.7.1 MAKEREREUNIVERSITY: The MakAdvance System

Makerere University has pioneered alumni information management in Uganda through the launch of the **MakAdvance Alumni Database** in 2022, during its centenary celebrations. The system enables alumni to register, validate, and update their information online, thereby improving data accuracy and security. Managed by the Makerere University Endowment Fund, MakAdvance supports networking, fundraising, and institutional visibility for a global alumni base of more than 400,000 graduates. While the system demonstrates the importance of centralized alumni databases, challenges remain in integrating alumni data with academic records and ensuring consistent alumni participation (Prof. Barnabas Nawangwe, 2022).

2.7.2 KYAMBOGO UNIVERSITY ADVANCEMENT AND ALUMNI RELATIONS OFFICE

Kyambogo University has established an alumni portal under its Advancement and Alumni Relations Office. This platform allows graduates to self-register, update their details, and receive newsletters about university activities. It provides a structured framework for alumni engagement and fundraising initiatives. However, the portal remains limited in terms of automation and analytics, and integration with broader institutional databases is still evolving. This reflects a common challenge in Ugandan universities, where alumni systems often operate as standalone platforms rather than fully integrated management tools (Mugagga, 2023).

2.7.3 UGANDA CHRISTIAN UNIVERSITY(UCU) ALUMNI ASSOCIATION

Uganda Christian University created its Alumni Association in 1997, supported by a digital platform that facilitates alumni chapters, networking opportunities, and events. The system emphasizes community building, mentorship, and alumni contributions to institutional development. Alumni can register, verify their details, and participate in alumni enterprises and fundraising activities. While UCU's approach has been effective in fostering relationships, it places less emphasis on employability tracking and systematic data analysis, which are increasingly important for curriculum review and accreditation processes (Ssekamanya, 2021)

2.7.4 BUSITEMA UNIVERSITY CONVOCATION

The Busitema University Convocation is the official association of alumni and staff. It was established in 2013 under the Universities and Other Tertiary Institutions Act, 2001. The convocation aims to promote the university's intellectual image. It handles key student welfare projects, including the Convocation Scholarship Fund. It also drives the Alumni Research & Innovation Initiative to build local technical solutions.

Membership includes all graduates and staff serving over two years. However, data collection mechanisms during graduation clearance remain rigid. Graduates must register manually during their graduation preparation process. (Convocation Secretariat, 2024)

At Busitema University, alumni management practices remain decentralized. Departments manage their own graduate records, and there is limited coordination in tracking alumni career progress and engagement. This situation creates challenges in maintaining updated information and planning alumni-related activities.

2.8 Empirical Review

Studies on alumni management systems show that institutions with centralized digital platforms experience improved communication, stronger alumni engagement, and better institutional planning.

Research also indicates that automated alumni systems support tracer studies, curriculum evaluation, and employability analysis. Institutions that invest in alumni data management report increased collaboration with industry partners and improved graduate support services.

However, studies conducted in developing countries emphasize challenges such as infrastructure limitations, lack of technical expertise, and resistance to technology adoption.

2.9 Identified research gap

Although several institutions have implemented alumni management systems, many are designed for developed contexts and may not suit the operational realities of universities in developing countries.

There is limited research focusing on localized alumni information systems tailored to the needs of Ugandan universities, particularly Busitema University. Existing systems do not adequately address issues such as:

1. Centralized data management
2. Graduate tracking
3. Communication and engagement
4. Integration with institutional processes

Therefore, this study seeks to design and develop a context-appropriate Alumni Information Management System that addresses the above challenges.

CHAPTER THREE: METHODOLOGY

3.0 INTRODUCTION

This chapter outlines the methods and procedures that were employed in the design, development, and evaluation of the Alumni Information Management System (AIMS) for Busitema University, Nagongera Campus. The chapter explains the research design, study population, sampling techniques, data collection methods, data analysis procedures, and the system development methodology adopted. The combination of descriptive research and system development approach ensured that both the user requirements and the technical aspects of the system were adequately addressed.

3.1 RESEARCH DESIGN

The study used a combination of descriptive and system development research designs. The descriptive design was used to collect detailed information about the current methods of managing alumni data at Busitema University and to identify the challenges faced by administrators, ICT staff, and alumni themselves. This approach helped the researcher to obtain both qualitative and quantitative insights about user needs, expectations, and system requirements.

For system development, the study adopted the **Rapid Application Development (RAD) model**. RAD emphasizes iterative prototyping, active user participation, and quick delivery of functional components. This approach ensured that the Alumni Information Management System (AIMS) is developed in close collaboration with stakeholders, allowing continuous feedback and refinement. RAD is particularly suitable given the need for flexibility, limited resources, and the importance of user acceptance in the success of the system.

3.2 STUDY AREA

The study was conducted at Busitema University, Nagongera Campus, located in Tororo District, Eastern Uganda and to other Faculties of Busitema University. The campus houses the Faculty of Science and Education and serves as one of the strongest campuses of Busitema University. The institution has a large population of graduates, but currently lacks an automated system for tracking and managing alumni information. This makes it an ideal case study for designing and implementing an Alumni Information Management.

3.3 TARGET POPULATION

The study targets individuals and departments that interact directly with alumni information. These included:

- University administrators (Dean of Students, Academic Registrar's office)
- ICT department staff
- Alumni representatives and selected former students

This population was selected because they are directly involved in data handling, alumni communication, and management processes.

3.4 SAMPLING TECHNIQUES AND SAMPLE SIZE

A purposive sampling technique was employed to select participants who have relevant experience and knowledge about alumni management practices. A total of 30 respondents was selected, comprising:

- 5 administrative staff members
- 10 lecturers
- 10 alumni members
- 5 Department heads

The researcher considered this number adequate to provide representative and adequate information and to guide the requirements for system development.

3.5 DATA COLLECTION METHODS

Multiple data collection methods were to be employed to ensure accuracy and comprehensiveness in understanding the problem and system requirements.

3.5.1 QUESTIONNAIRES

Structured and semi-structured questionnaires were administered to university staff and alumni and selected students. These aided in gathering information on how alumni records are currently managed, the challenges faced, and the desired features in an automated system.

3.5.2 INTERVIEWS

Face-to-face interviews were conducted with administrative and ICT officers to gain deeper understanding into data management procedures, security concerns, and institutional goals related to alumni engagement.

3.6 DATA ANALYSIS TECHNIQUES

The collected data was analyzed both qualitatively and quantitatively. Qualitative data from interviews and open-ended questionnaires was analyzed through thematic analysis that is by identifying recurring themes, challenges, and requirements. Quantitative data from closed-ended questions was analyzed using descriptive statistics such as percentages and frequency tables. The results collected informed the functional and non-functional requirements of the Alumni Information Management System.

3.7 SYSTEM DEVELOPMENT METHODOLOGY

System development was guided by the **Rapid Application Development (RAD)** methodology. RAD emphasizes iterative prototyping, continuous user feedback, and incremental refinement. The process followed four phases: requirements planning, user design, construction, and cutover. Requirements planning involved literature review, interviews, and analysis of health facility data from three selected facilities. User design included prototype development and feedback sessions. Construction will involve iterative coding and refinement. Cutover will include final testing and evaluation.

The combined mixed-methods design and RAD approach ensured that the developed system is both technically functional and contextually appropriate within the four-month project period

3.7.1 REQUIREMENTS ANALYSIS

Information gathered from respondents were used to determine user requirements. The requirements are classified into functional requirements (e.g., alumni registration, search, reporting, and communication modules) and non-functional requirements (e.g., security, usability, performance).

3.7.2 SYSTEM DESIGN

During this phase, the system architecture, data flow diagrams (DFDs), entity relationship diagrams (ERDs), and database schema were be developed. The system interface designs ought to be created to ensure user-friendliness and accessibility.

3.7.3 SYSTEM IMPLEMENTATION

AIMS was developed using web-based technologies such as HTML, CSS, JavaScript, PHP, and MySQL for database management. This provided platform independence, scalability, and ease of deployment across campus systems.

3.7.4 TESTING

Various testing methods were employed, including unit testing, integration testing, and user acceptance testing (UAT). This ensured that the system functions as intended and meets user requirements effectively.

3.7.5 DEPLOYMENT

After successful testing, the system was deployed on a local server within Busitema University's ICT environment for pilot testing. Selected administrative staff and alumni are to be invited to use the system and provide feedback.

3.7.6 MAINTENANCE

Post-deployment, the system requires periodic maintenance to address bugs, upgrade functionality, and ensure data security. Maintenance plans also include user training and technical support.

3.8 ETHICAL CONSIDERATIONS

Ethical approval was sought from the university's research committee. Participants shall be assured of confidentiality and anonymity, and informed consent will be obtained prior to participation. Data collected will be used solely for academic purposes and system design.

CHAPTER FOUR: SYSTEM STUDY AND DESIGN

4.1 INTRODUCTION

This chapter presents the system analysis and design of the proposed Alumni Information Management System (AIMS). It focuses on examining the existing system, identifying its strengths and weaknesses, and defining the requirements of the new system. The chapter further describes the design of the proposed system, including architectural design, data flow, and database structure. The aim is to provide a clear blueprint for the development and implementation of an efficient and centralized alumni management system.

4.2 SYSTEM STUDY

4.2.1 Strengths of the current system

Despite its limitations, the current system has some strengths that can be built upon in the development of the new system. For instance, basic alumni data already exists within various departments, which provides a starting point for data migration into the proposed system.

The university staff are familiar with the existing processes of data collection and management, which can facilitate the transition to a computerized system.

Some departments have also adopted the use of spreadsheets for storing alumni information, indicating a gradual shift toward digital data management. Informal alumni networks exist through social media platforms, demonstrating that alumni are willing to engage with the university when provided with appropriate communication channels.

4.2.2 Weakness of the current system

The current alumni information management practices at Busitema University are characterized by several limitations that hinder effective data management and alumni engagement. One major weakness is the lack of a centralized system, which results in alumni data being scattered across different departments and faculties. This fragmentation makes it difficult to access accurate and consistent information about graduates. Others include;

- **Manual record keeping**: Use of paper files and spreadsheets leads to inefficiency.
- **Data redundancy and inconsistency**: Duplicate records exist across departments.
- **Difficulty in retrieval**: Searching for alumni information is time-consuming.
- **Poor communication**: No centralized platform to communicate with alumni.
- **Lack of real-time updates**: Alumni cannot update their own information.
- **Security risks**: Manual systems are prone to data loss and unauthorized access.

4.3 SYSTEM ANALYSIS

4.3.1 Requirements Analysis

The system requirements are mainly categorized into two i.e. the functional and non-functional requirements

4.3.1.1 Functional requirements

The functional requirements of the system include the ability to register alumni, allow users to log in securely, update and manage alumni profiles, and store data in a centralized database. The system should also provide search functionality to enable quick retrieval of alumni records, generate reports for administrative use, and support communication through notifications and announcements.

4.3.1.2 Non-functional requirements

The non-functional requirements include ensuring data security through authentication and access control mechanisms, providing a user-friendly interface to enhance usability, maintaining high system performance with minimal delays, and ensuring reliability and availability for continuous access. The system should also be scalable to accommodate an increasing number of users over time.

4.3.2 System requirements specification

The system requires both hardware and software components for effective operation. On the hardware side, users will need access to computers or smartphones with internet connectivity, while the university will require a server to host the system.

On the software side, the system was developed using web technologies. HTML, CSS, and JavaScript will be used for the front-end interface, while PHP will handle server-side processing. MySQL will be used as the database management system to store and manage alumni records. The system will be accessible through standard web browsers such as Google Chrome and Mozilla Firefox among others.

4.3.3 System Limitations

Although the proposed system addresses many challenges, it has some limitations. Such as

1. The system relies on internet connectivity, which may not always be available to all users, particularly those in remote areas.
2. The success of the system also depends on user adoption, as alumni and administrators must actively use the platform for it to be effective.
3. The system may require continuous updates and maintenance to accommodate new requirements and technological changes.

4.4 SYSTEM DESIGN

4.4.1 Architectural design

The AIMS System follows a standard Client-Server architecture with a focus on API-driven interaction. The client side provides the user interface through which alumni and administrators can interact with the system. The server side, developed using PHP, handles application logic, processes user requests, and communicates with the database. The MySQL database stores all alumni information and ensures data consistency and integrity.

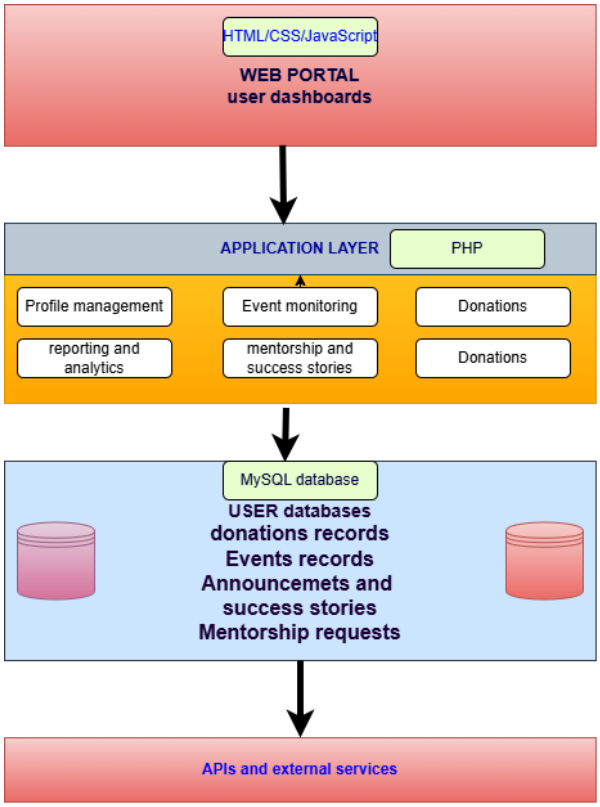

Figure 1: Architectural design

4.4.2 Context diagram

The Context Diagram defines the boundary of the Alumni Information Management System (AIMS) and its interactions with external entities.

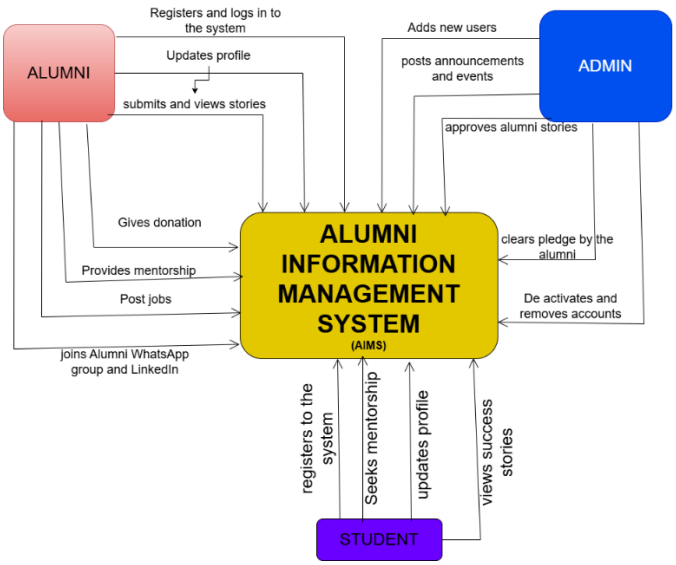

Figure 2: context diagram

4.4.3 Data Flow Diagram (DFD)

This diagram provides a hierarchical view of how data flows through the AIMS system.

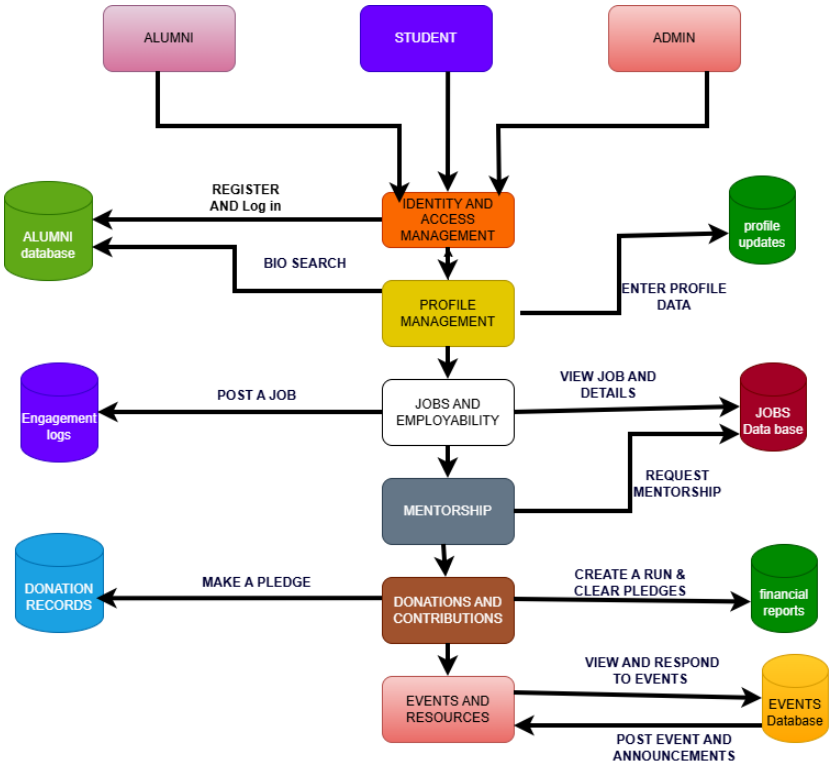

Figure 3: Dataflow diagram

4.4.4 Entity Relationship Diagram (ERD)

This diagram visualizes the table structures and relationships within the system

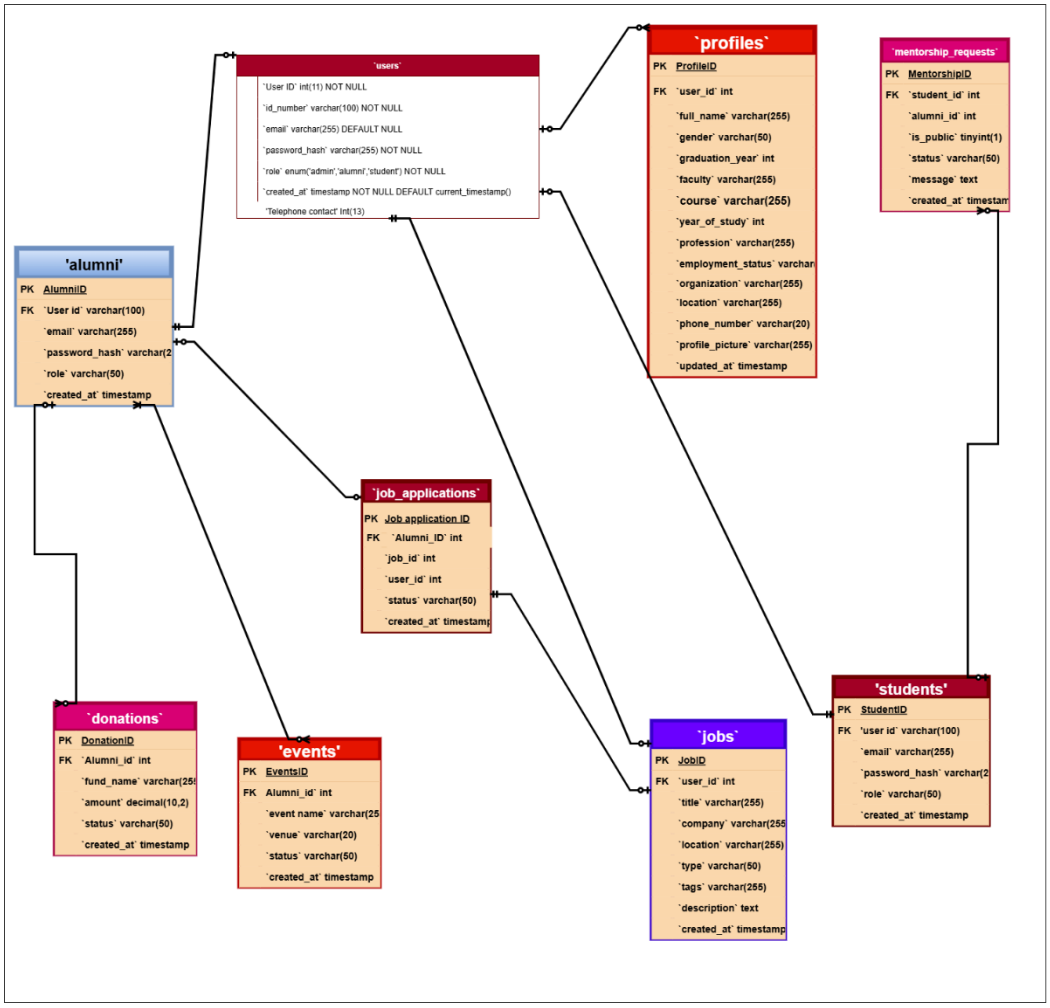

Figure 4: entity relationship diagram

4.4.5 Use Case Diagram

The Use Case Diagram illustrates the functional requirements of the system and how different users interact with it.

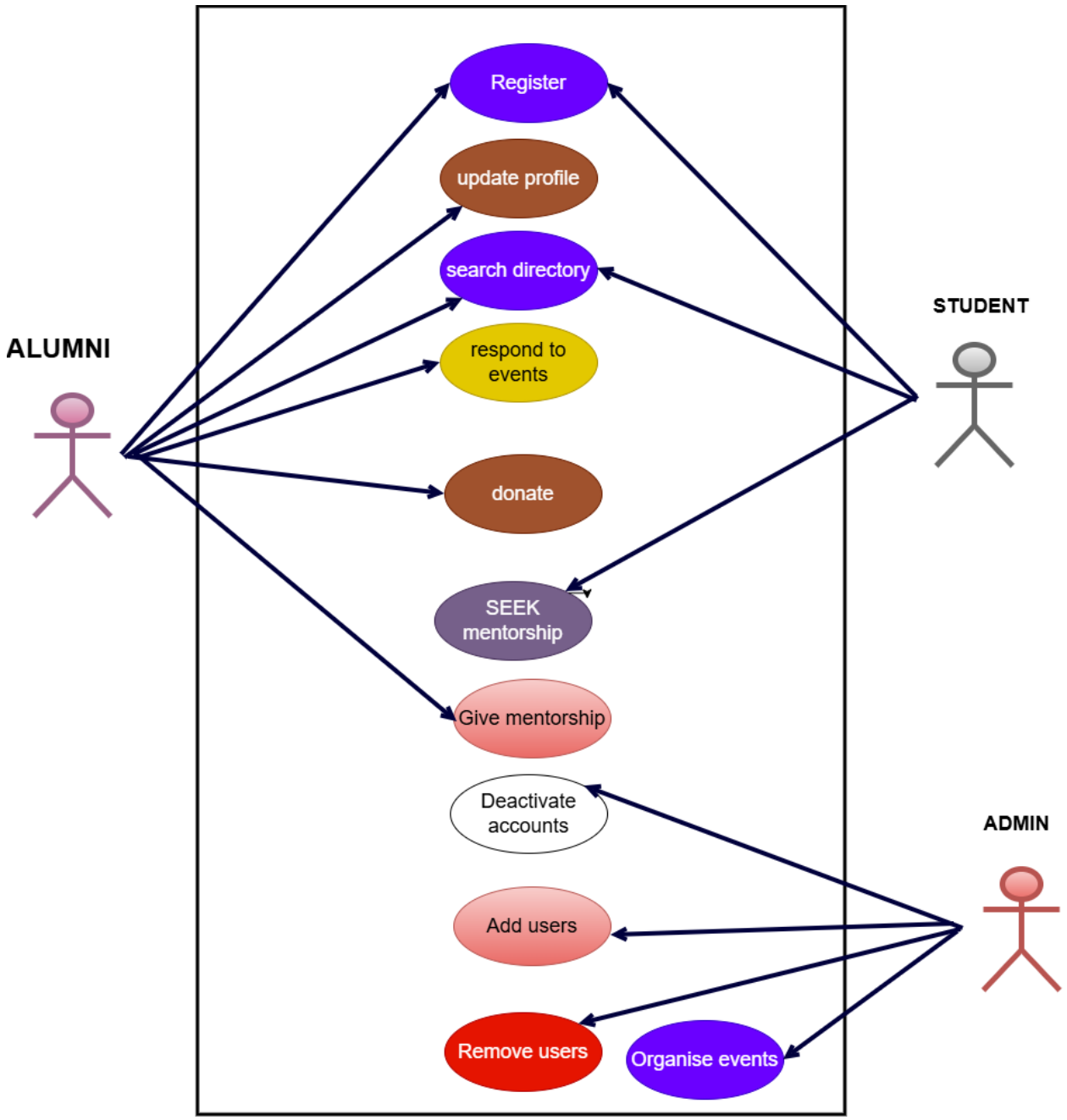

Figure 5: use case diagram

CHAPTER FIVE: PRESENTATION OF RESULTS

5.1 Introduction

This chapter describes the implementation of the Alumni Information Management System and the procedures used to test and validate its functionality. It outlines the technologies used, the system outputs, and the testing methods employed to ensure that the system meets user requirements.

5.2 Implementation

The system was implemented using a combination of web-based technologies ranging for the backend and frontend.

HTML was used to create the structure of the web pages. Used to structure web pages such as Registration forms, Login pages, User dashboards and other pages in the system

CSS was applied to enhance the visual appearance and layout of the system. It is Used for Styling interfaces, Improving user experience, Responsive design

JavaScript was used to add interactivity and perform client-side validation. Used for; Form validation, Interactive elements and Dynamic content updates

PHP was used to process user requests, handle form submissions, and interact with the database. It is Used for Server-side logic, Form processing and Database interaction.

MySQL was used to store and manage all alumni data and other users plus entities in the system. It is used to Store alumni and student data, Manage records, Support queries.

5.3 Results presentation

5.3.1 User Interfaces

The developed system successfully provides a platform for managing alumni information. Users can register, log in, and update their profiles, while administrators can manage records and generate reports.

The system includes several user interfaces, such as the login page, registration page, and dashboard. The database design ensures efficient storage and retrieval of data, supporting the overall functionality of the system.

The system interfaces are as shown below;

5.3.1.1 LOG IN PAGE

All users have a uniform login page which is only distinguished by the details being entered.

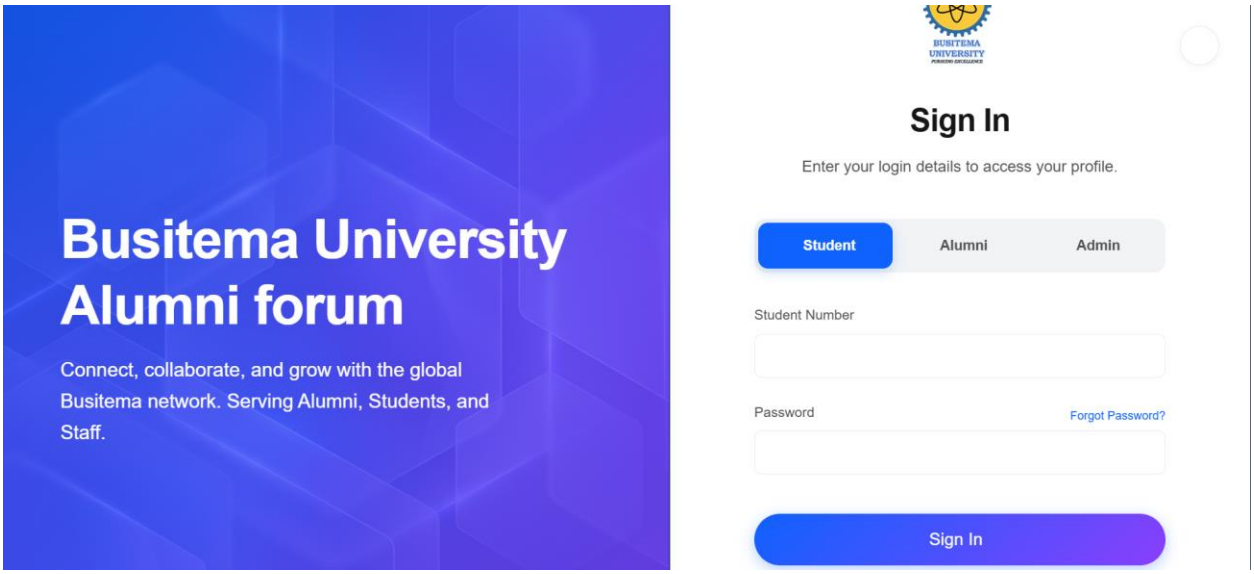

Figure 6: Log in Page for all users

5.3.1.2 Alumni registration page

Alumni have a registration page where they are required to provide their student number, full names, email, contact, employment status, and organization (if employed). Graduation year and faculty are also required plus a strong password.

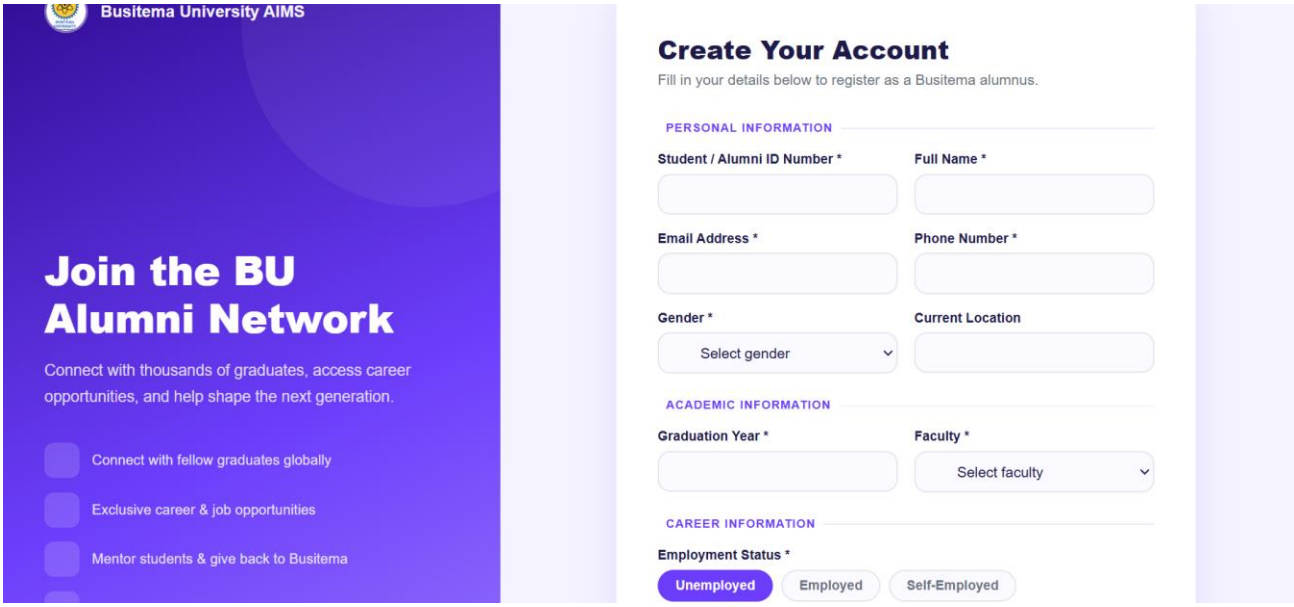

Figure 7: Alumni registration page

5.3.1.3 Current Student registration page

The current students also register themselves using the registration page where they provide their student number, name, gender, year of study, faculty, course or program

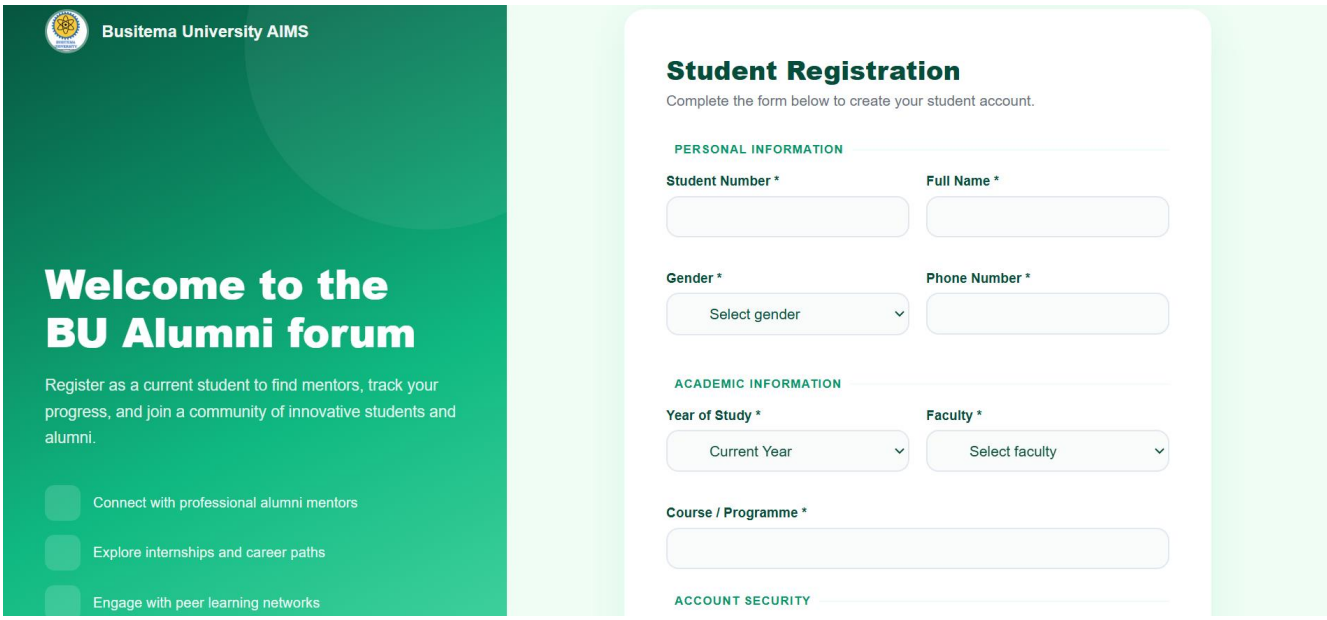

Figure 8: Registration page for the current students

5.3.1.4 Alumni page

The admin dashboard provides a page where the main dashboard shows the announcements and the total network size on the platform. The sidebar shows all the contents available for the alumni for example Alumni directory which shows the list of all alumni, scheduled events and reunions, job board where they can view the posted jobs or post a job. There is also contribution where they can view the contribution runs or campaigns posted by the admin. The contribution tab is only visible on this page when it is allowed by the admin(toggled) others are tracking, mentorship and success stories.

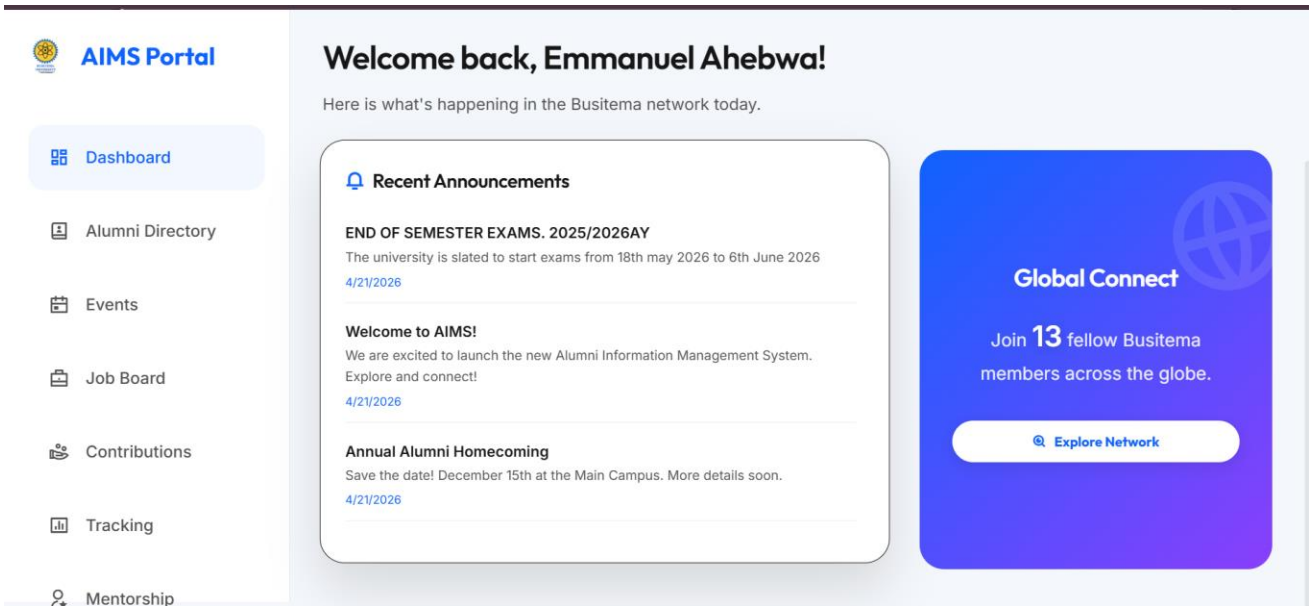

Figure 9: Alumni main dashboard. default page after logging in to the system

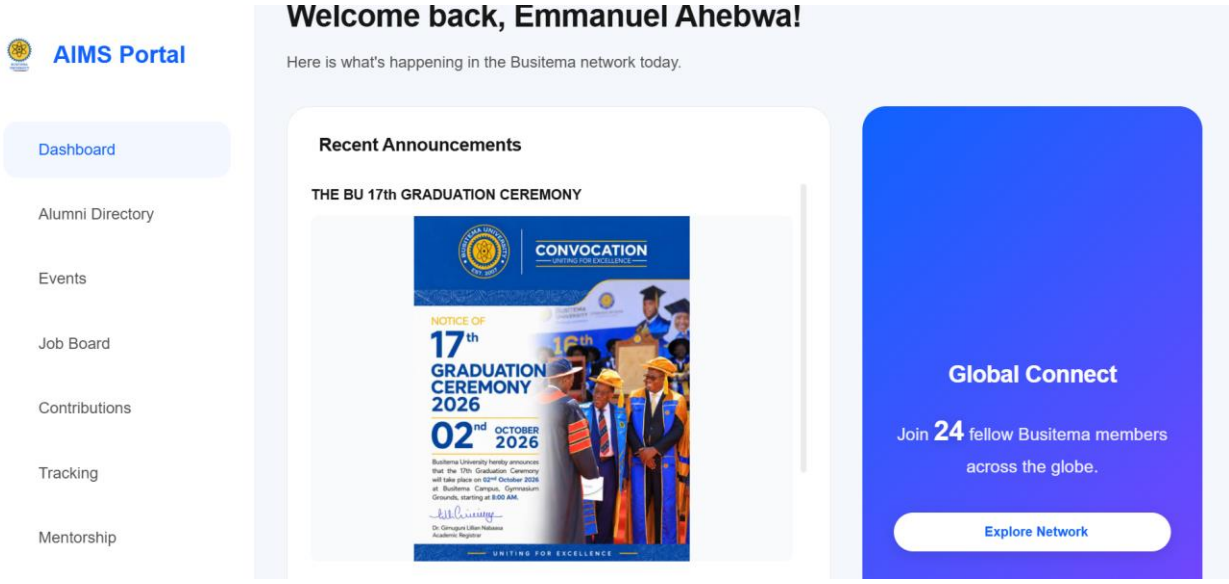

Figure 10: Sample announcements display

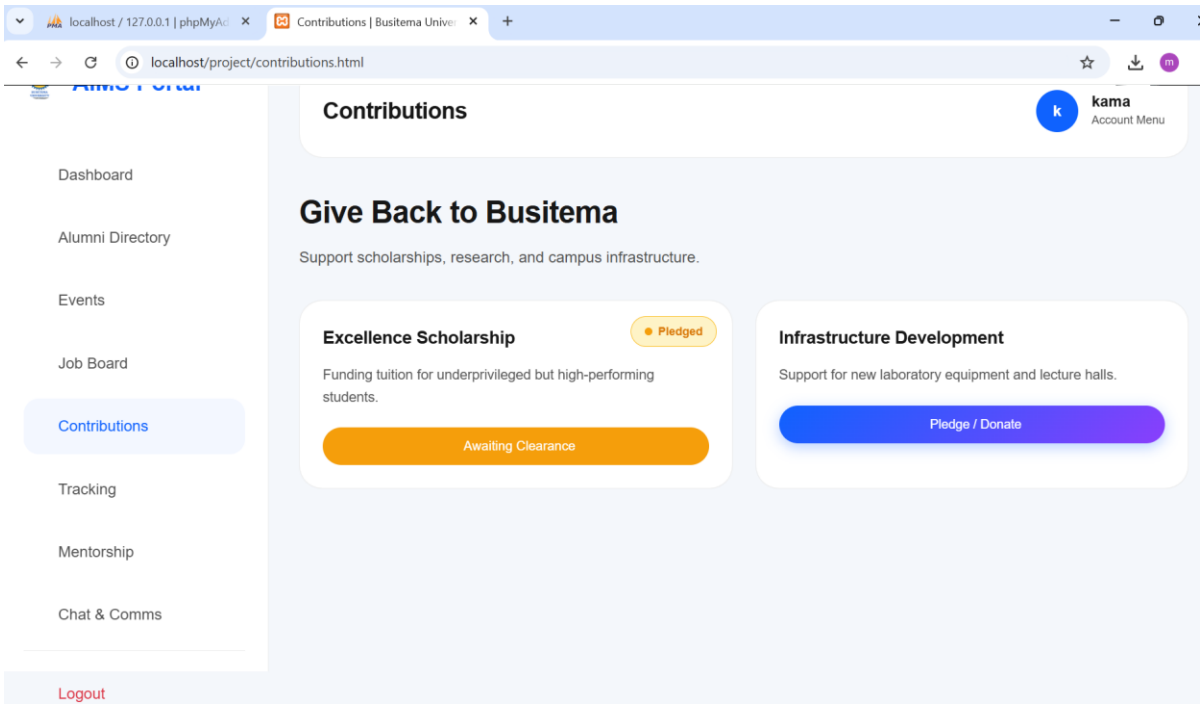

Figure 11. contributions page for the alumni

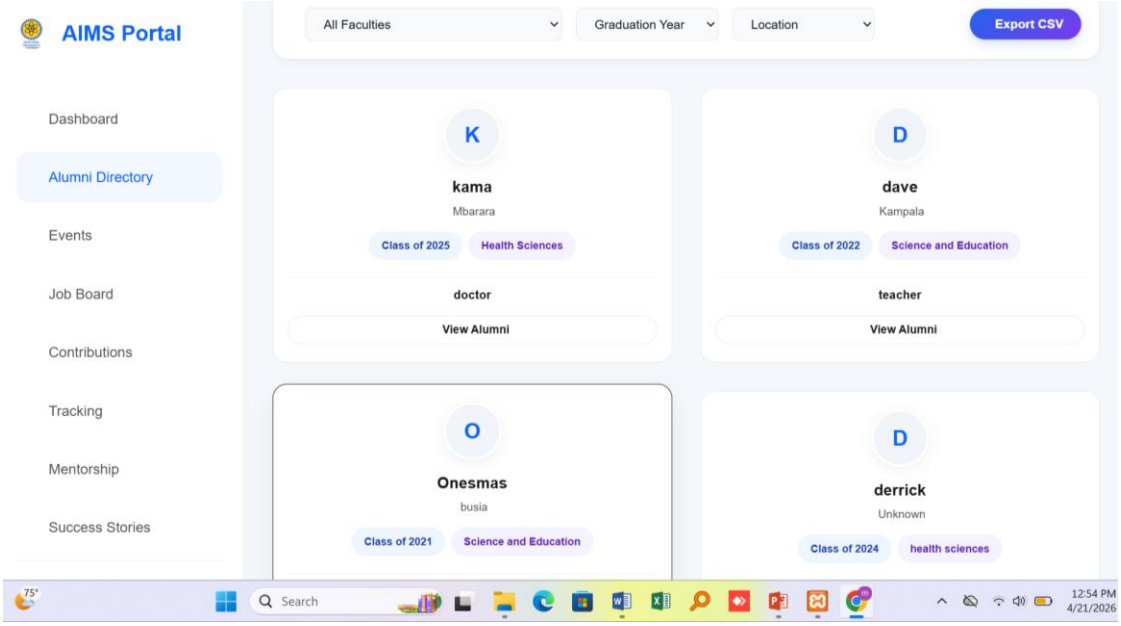

Figure 12. Alumni directory where the list of all alumni in the system is displayed

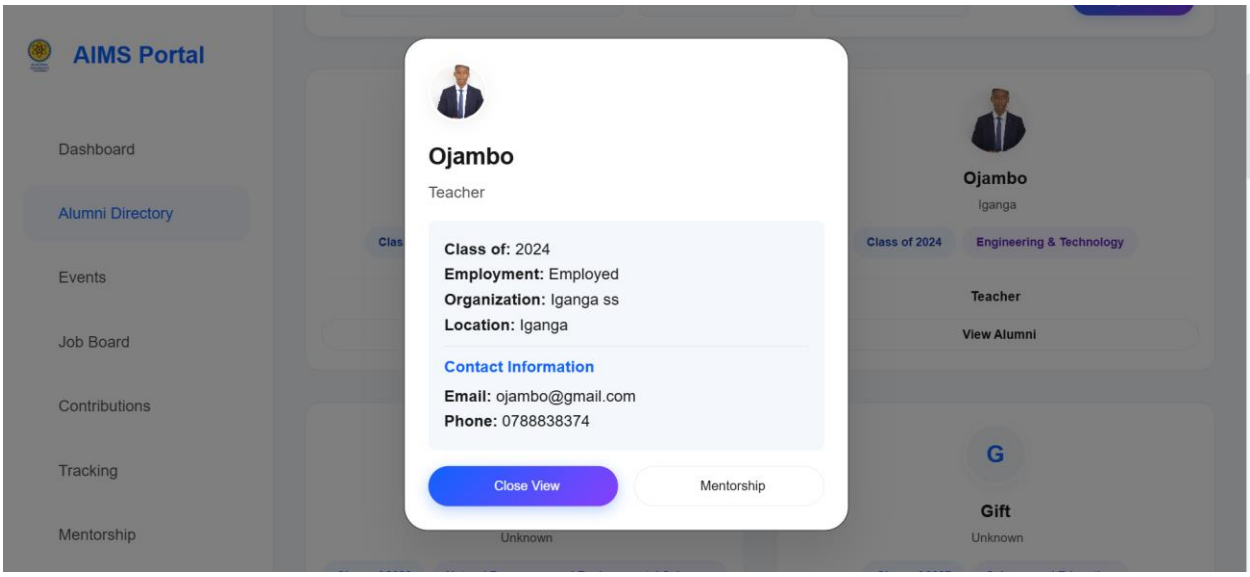

Figure 13: Alumnus profile

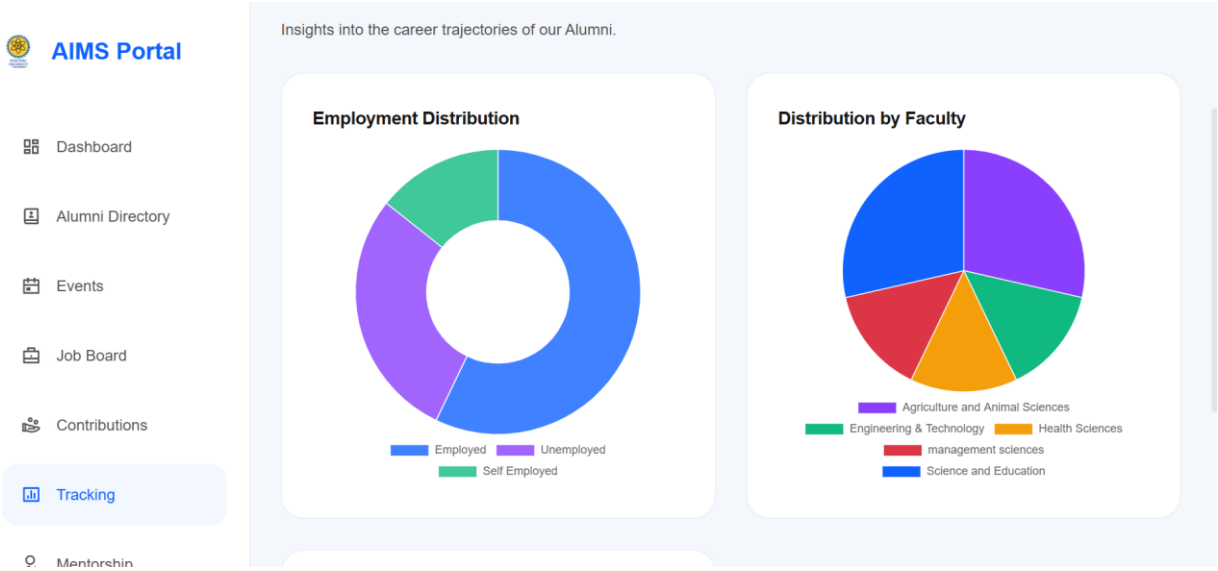

Figure 14: Graphs showing the employability tracking and the distribution per faculty

5.3.1.5 Admin dashboard

The admin page contains different activities and this is the manager of the whole system. The admin has control of every activity that takes place on the system. He can add or remove users, view profiles, post events, announcements and add the new campaign runs, clears the pledges and donations and approves the success stories

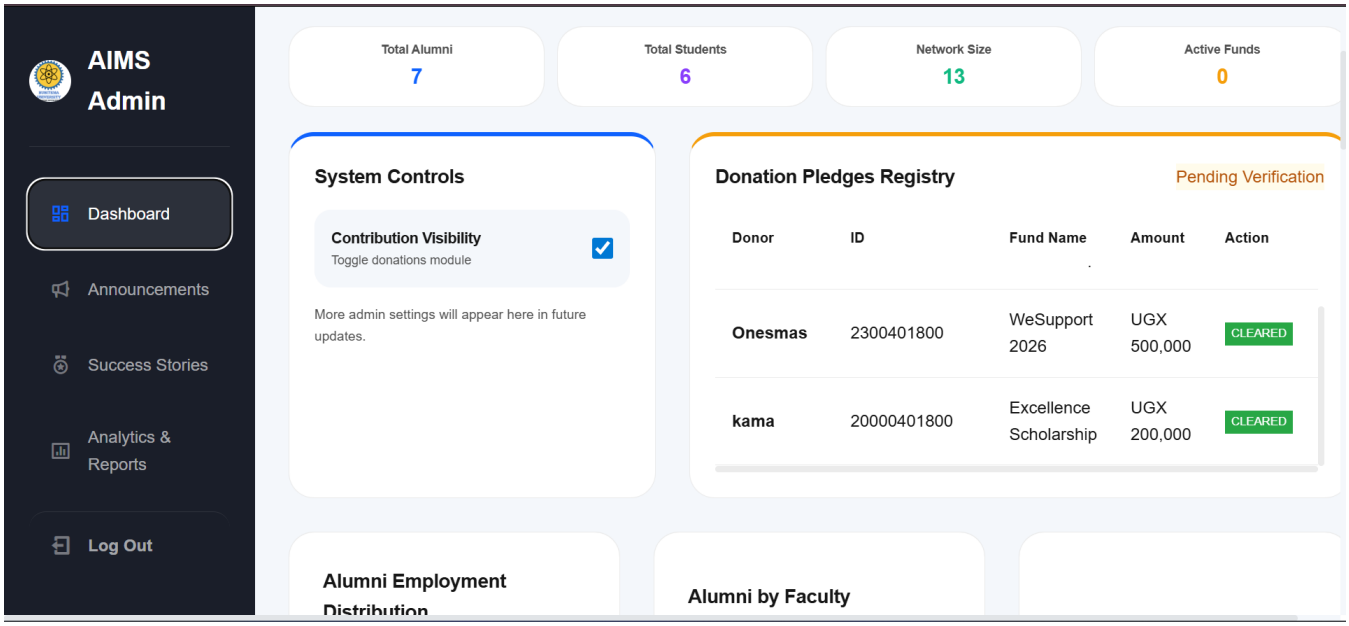

Figure 15: Admin main dashboard

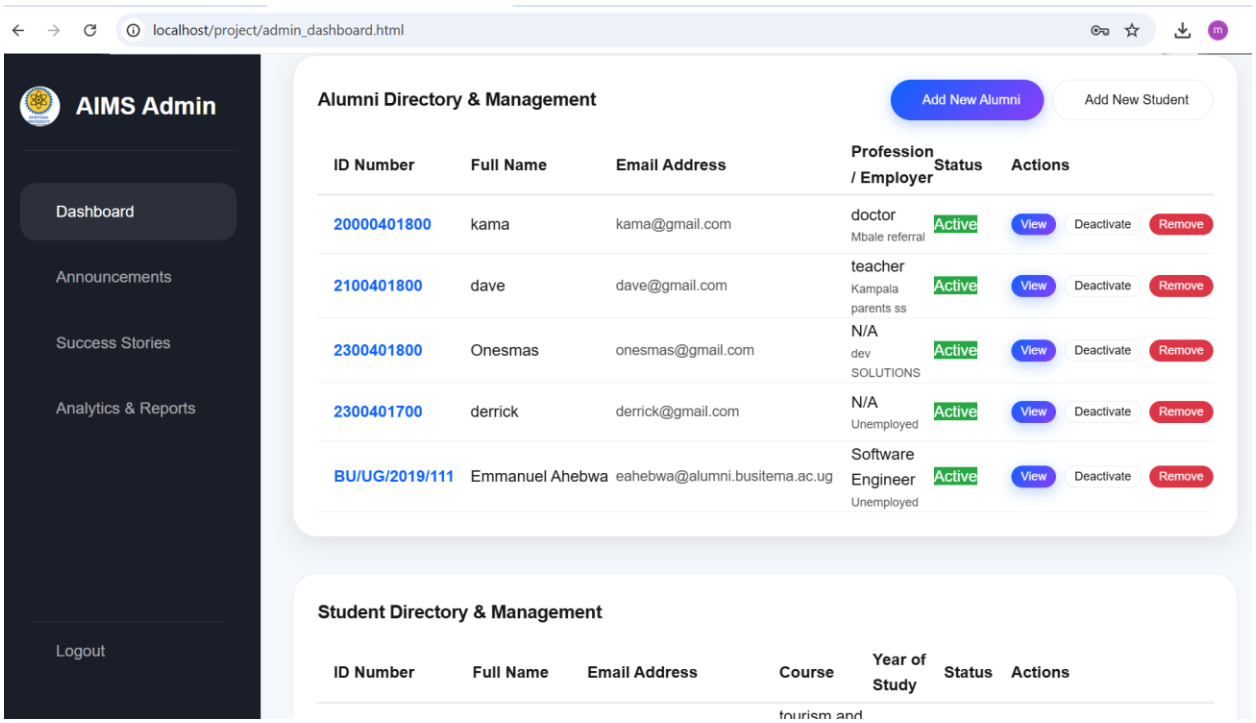

Figure 16: The alumni and student management

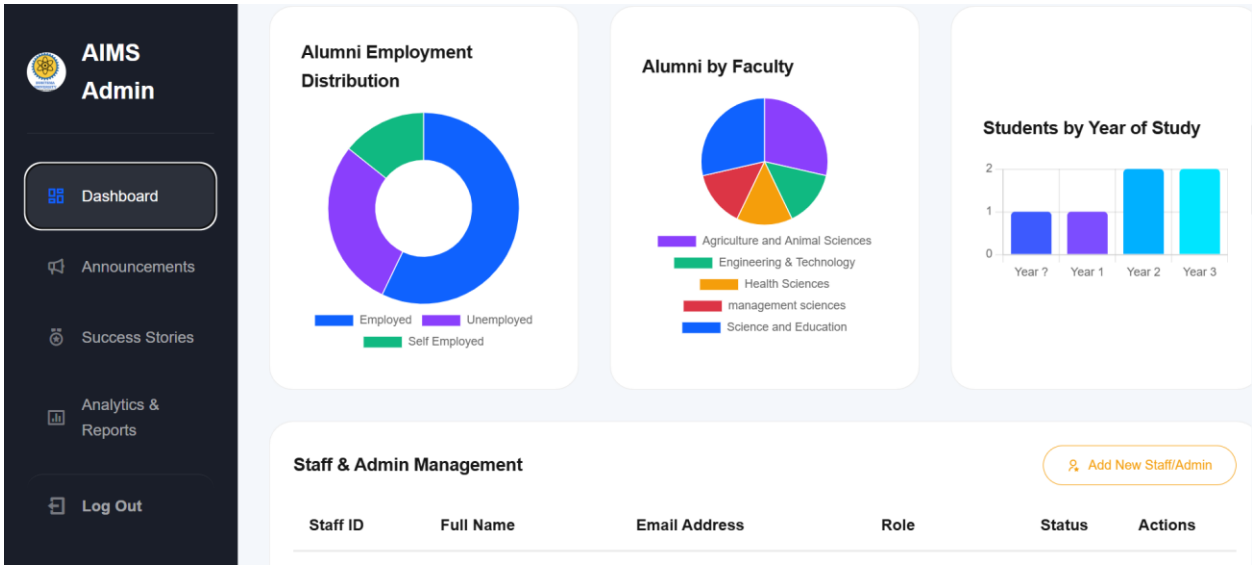

Figure 17: Distribution graphs

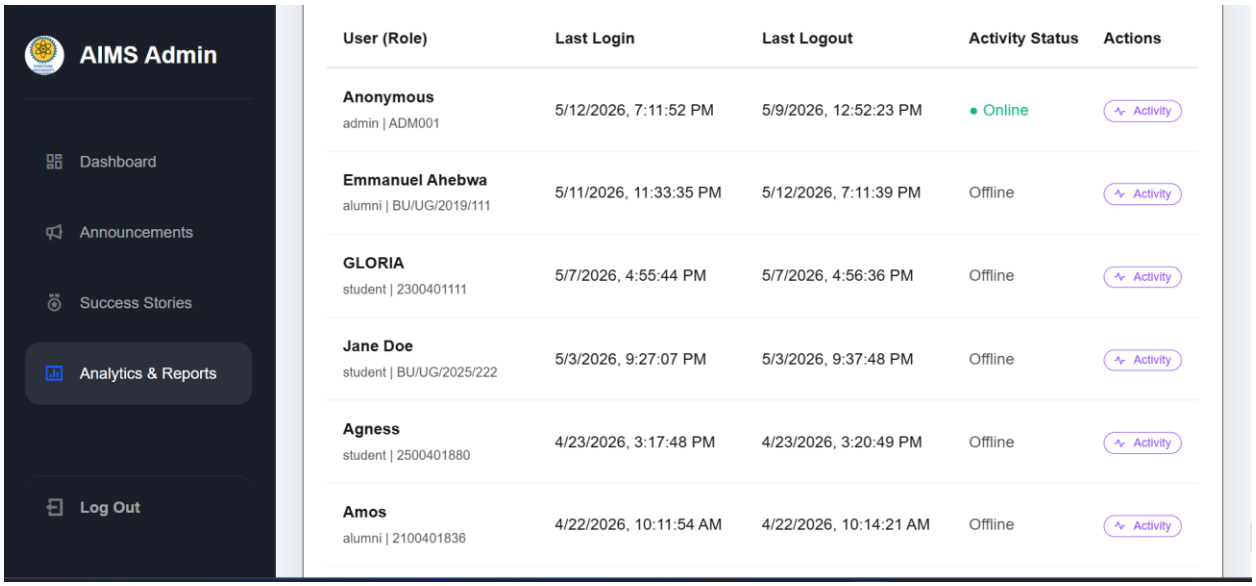

Figure 18: Reporting and analytics page. User Engagement (Login/Logout Sessions)

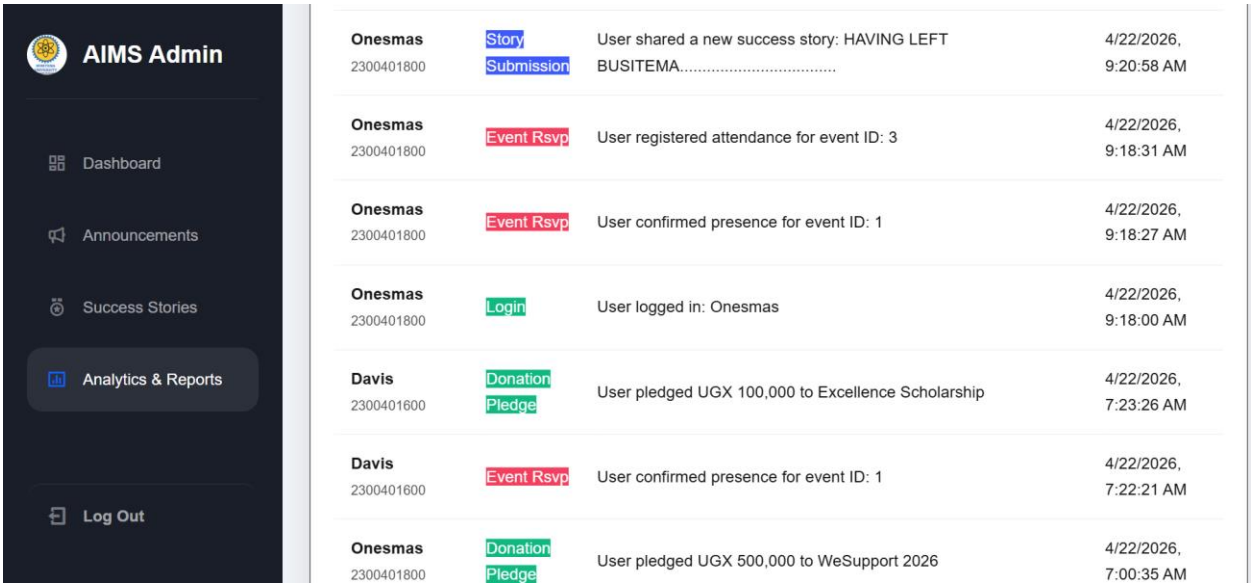

Figure 19:System-Wide Activity Log

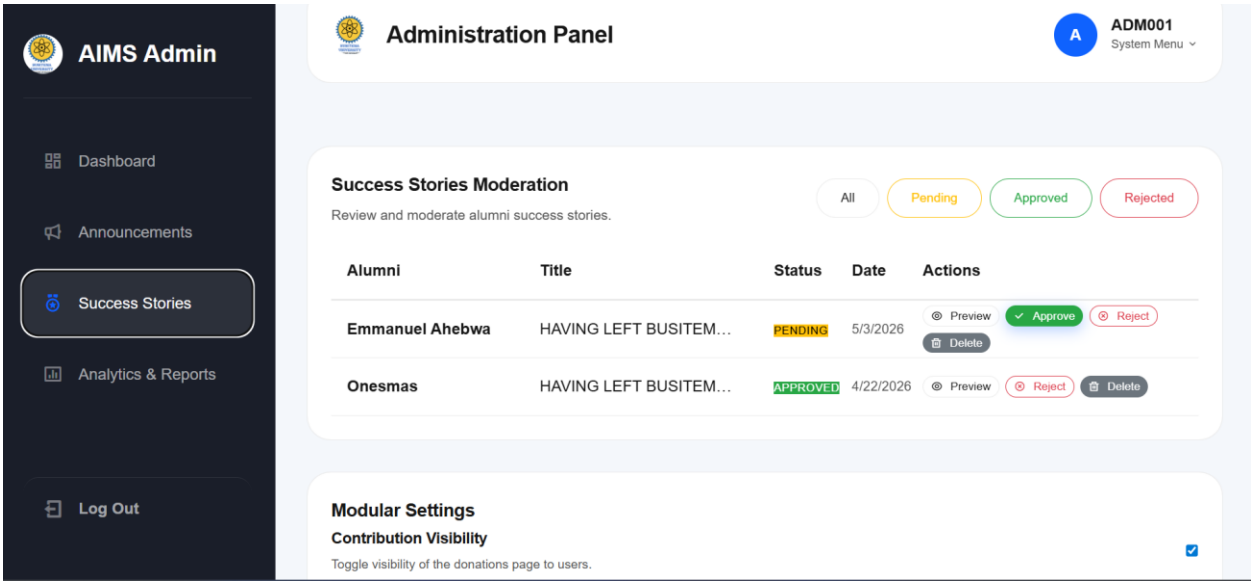

Figure 20: Success stories moderation

5.3.1.6 Students' dashboard

The current students only use the system to request for mentorship from the alumni, and see the success stories that are posted by the alumni. They can also update their profiles.

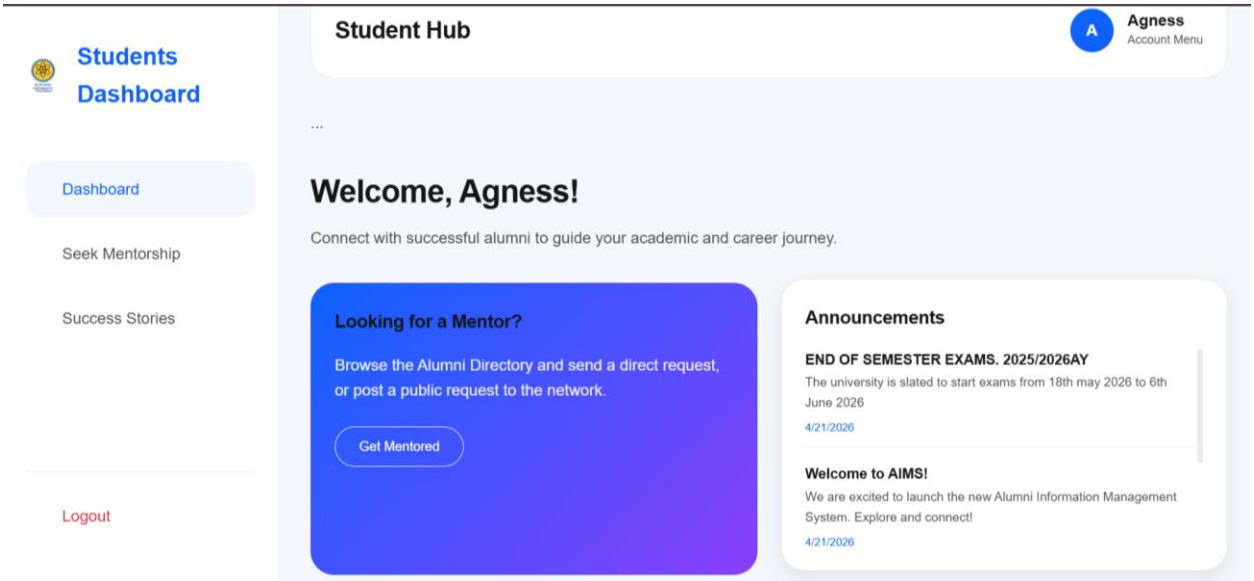

Figure 21: The current students' main dashboard

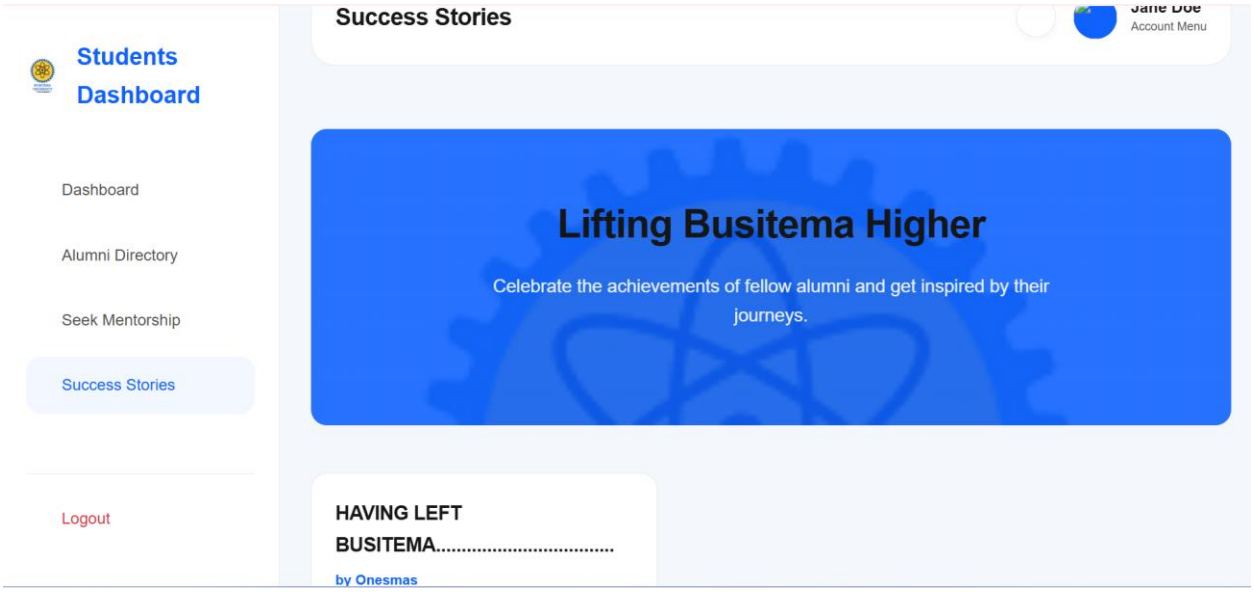

Figure 22: success stories page

5.4 System Testing

System testing was conducted to ensure that the system operates as intended. Various testing methods were employed, including unit testing, integration testing, and system testing.

Unit testing focused on individual components of the system, while integration testing ensured that different modules work together correctly. System testing evaluated the overall performance of the system. User acceptance testing was also conducted to confirm that the system meets user expectations and is easy to use.

5.4.1 Unit Testing

Unit testing involved testing individual components of the system independently to verify that each module performs its intended function correctly. Key modules tested included the registration module, login module, and profile management module. For instance, the registration module was tested by entering valid and invalid user data to confirm that the system correctly validates inputs and stores data in the database. Similarly, the login module was tested using both correct and incorrect credentials to ensure proper authentication. The results showed that all individual modules functioned as expected.

5.4.2 Integration Testing

Integration testing was carried out to evaluate how different modules of the system interact with each other. This ensured that data flows correctly between components and that combined functionalities work seamlessly. For example, the interaction between the registration module and the database was tested to confirm that user data is accurately stored and retrieved. Additionally, the connection between the login system and the user dashboard was tested to ensure that authenticated users are directed to the appropriate interface. The testing confirmed smooth integration between system components without errors.

5.5 System Validation

Validation was achieved by comparing system performance with the defined requirements and confirming that expected outputs were obtained. The results showed that the system meets both functional and non-functional requirements. Users confirmed that the system is easy to use, reliable, and effective in managing alumni information. This indicates that the system reliable, efficient, and is suitable for deployment and use within the university. The results showed that all functional requirements were successfully implemented and performed as expected. This confirmed that the system is suitable for deployment and practical use.

The results showed that all functional requirements were successfully implemented and performed as expected.

CHAPTER SIX: DISCUSSION, CONCLUSIONS, RECOMMENDATIONS AND FUTURE WORK

6.1 Introduction

This chapter presents the conclusions drawn from the study and provides recommendations for improving and sustaining the Alumni Information Management System.

6.2 Discussion of results

The study achieved its main objective of developing an Alumni Information Management System for Busitema University and the other for specific objectives. The system provides a centralized platform for managing alumni data, improving communication, and supporting institutional decision-making. It also enhances alumni engagement and creates opportunities for networking and collaboration.

6.3 Challenges Encountered

Several challenges were encountered during the study. These included limited time for system development, difficulties in accessing complete alumni data, and limited financial resources. Additionally, some users were initially reluctant to adopt the new system, highlighting the need for awareness and training.

6.4 Recommendations

It is recommended that Busitema University adopts the system fully and invests in its maintenance and improvement. The university should provide training to staff and alumni to ensure effective use of the system. Efforts should also be made to improve ICT infrastructure and encourage alumni participation. Regular updates and security enhancements should be implemented to maintain system performance and data integrity.

6.5. Conclusion

In conclusion, the development of the Alumni Information Management System provides a practical solution to the challenges of managing alumni data at Busitema University. The system

improves data accuracy, enhances communication, and supports institutional development. Its successful implementation will strengthen the relationship between the university and its alumni, contributing to long-term growth and sustainability.

6.6 Future Research

Future research can focus on enhancing the system by integrating advanced features such as mobile applications, data analytics, and job placement services. Further studies can also explore the integration of the system with other institutional databases and systems such as the student portal and others to improve efficiency and data sharing. Offering job posting services other than just posting is can be done in the future work.

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APPENDICES

APPENDIX I: WORK PLAN

S/N	ACTIVITY	PERIOD
1	Requirements gathering	3 weeks
2	Proposal preparation presentation	1 week
3	Data collection	2-3 weeks
4	Designing the system	3 weeks
5	Testing the system	2 weeks
6	System deployment	1 week

APPENDIX II: THE BUDGET

S/N	ITEM	AMOUNT
1	Transport	20,000/=
2	Stationary	75,000/=
3	Flash disk	20,000/=
4	Software tools	50,000/=
5	Miscellaneous	15,000/=
	TOTAL	**180,000/=**

APPENDIX III: QUESTIONNAIRE FOR COLLECTING OF INFORMATION

ALUMNI INFORMATION MANAGEMENT SYSTEM RESEARCH QUESTIONNAIRE

Dear Respondent,

I am Ahebwa Davis, a student at Busitema University, Faculty of Science and Education, conducting a study on the development of an Alumni Information Management System.
The purpose of this questionnaire is to gather information about the current alumni data management practices and collect requirements for the proposed system.
Your responses will be treated with strict confidentiality and used only for academic purposes.

Please answer all questions honestly.

SECTION A: RESPONDENT INFORMATION

1. Category of Respondent

☐ Administrator

☐ Academic Staff Member

☐ Alumni

☐ Final Year Student

2. Years Associated with the University

☐ Less than 2 years

☐ 2–5 years

☐ 6–10 years

☐ Above 10 years

SECTION B: CURRENT ALUMNI MANAGEMENT PRACTICES

3. Does the university currently maintain alumni records?

☐ Yes

☐ No

☐ Not Sure

4. If yes, how are alumni records currently managed?

☐ Paper files

☐ Excel spreadsheets

☐ Departmental databases

☐ Other (Specify)

5. If managed in another way, please specify.

……
……
……
……

6. How often are alumni records updated?

☐ Regularly

☐ Occasionally

☐ Rarely

☐ Never

7. How effective is the current system for managing alumni information?

☐ Very Effective

☐ Effective

☐ Not Effective

☐ Very Poor

SECTION C: CHALLENGES FACED

8. What challenges are experienced in managing alumni information? (Select all that apply)

☐ Data duplication

☐ Loss of records

☐ Outdated contact information

☐ Poor communication with alumni

☐ Lack of reporting tools

☐ Lack of centralized database

☐ Data security concerns

☐ Other (Specify)

9. If there are other challenges, please specify.

……

……

……

……

10. How would you rate communication between the university and alumni?

☐ Excellent

☐ Good

☐ Fair

☐ Poor

SECTION D: REQUIREMENTS FOR THE PROPOSED SYSTEM

11. Do you think the university needs a computerized Alumni Information Management System?

☐ Yes

☐ No

12. If yes, why?

……
……
……
……

13. What key features should the new system include? (Select all that apply)

☐ Alumni registration and profile management

☐ Employment tracking

☐ Event management

☐ Email/notification system

☐ Secure login and authentication

☐ Data backup and recovery

☐ Alumni networking platform

☐ Job posting portal

☐ Communication tools and links

☐ Report generation

☐ Other (Specify)

14. What type of reports should the system generate?

☐ Employment status reports

☐ Alumni location reports

☐ Program-based alumni statistics

☐ Event participation reports

☐ Other (Specify)

SECTION E: EXPECTED BENEFITS

15. What benefits do you expect from the proposed system? (Select all that apply)

☐ Improved communication

☐ Better data accuracy

☐ Easier record retrieval

☐ Improved planning and decision-making

☐ Stronger alumni engagement

☐ Better data security

☐ Faster report generation

16. In your opinion, what are the major weaknesses of the current alumni management approach?

……
……
……
……
……
……

17. In your opinion, how can alumni engagement be improved at Busitema University?

……
……
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……

18. Any additional suggestions regarding the proposed Alumni Information Management System?

……
……
……
……
……
……

Thank you for taking time to complete this questionnaire. Your contribution is highly appreciated and will support the successful development of the proposed Alumni Information Management System.