



# Pages to Screen: Digitalized Yearbook with Chatbox and Gallery

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## ABSTRACT

This study explores the potential of Digitalized Yearbook as a transformative tool. Aimed at enhancing customer engagement, streamlining yearbook production, and expanding service offerings, Digitalized Yearbook promises to position its client as a leader in innovative event photography and printing solutions. With a focus on improving alumni engagement and school administration efficiency, Digitalized Yearbook serves as a dynamic platform for reconnecting graduates, managing data, and preserving school memories. Utilizing the Waterfall Model, this project adhered to clear, defined stages, facilitating effective planning, resource allocation, and quality control. This structured approach minimized risks and enhanced the efficiency of the development process. The evaluation of Digitalized Yearbook revealed a 94.37% effectiveness rate, marking it as 'Excellently Functional.' This score reflects not only the system's technical proficiency but also its successful integration of functionality, reliability, and user-centric design, indicating its substantial potential to revolutionize the landscape of event photography and alumni engagement.

**Key words:** Digital Yearbook, Digitalized Yearbook, Digitalized Yearbook with Chat box and Gallery, Graduate Tracer

## 1. INTRODUCTION

In the ever-evolving landscape of digital technology, the way we connect, reminisce, and network has transformed dramatically. We are undeniably living in an era marked by significant advancements in digital technology and a growing reliance on digital mediums [1]. But yearbook is one of the things that make your college life memorable. According to Umair [2] that a yearbook stands as a fundamental component of any educational institution, acting as a lasting document that chronicles the school's events and activities. Traditional methods of preserving memories and fostering alumni relations, such as physical yearbooks, are becoming obsolete

in the face of dynamic, interactive, and continuously accessible digital platforms. The widespread appeal and significance attributed to them by the community has led to a growing trend of digitizing yearbooks and providing online access, a service highly desired by alumni, libraries, educational establishments, and various organizations, regardless of their size [3].

Recognizing this paradigm shift, the researchers introduce "Pages to Screen: Digitalized Yearbook with Chatbox and Gallery" a pioneering system designed to reinvent how educational institutions, alumni, and students interact and sustain connections post-graduation. The primary objective of developing this yearbook project is to create an online platform accessible to college management, faculty, and student alumni [4]. Digitalized Yearbook is not merely a digital yearbook; it is a comprehensive platform that synergizes nostalgic elements with practical, modern-day functionalities. It offers a rich tapestry of features, including a media gallery, graduate tracer, job announcements, and interactive communication tools, all tailored to enhance the experience of its three primary user groups: Alumni/Students, School Admins, and System Admins.

The benefits of digital yearbooks include ease of updating, interactivity, global accessibility, unlimited content, ease of sharing, inclusivity, cost-effectiveness, and environmental benefits. These features make digital yearbooks a valuable tool for preserving memories and celebrating achievements in a modern and accessible format. The transition from traditional to digital solutions addresses the need for more dynamic and engaging methods in managing alumni networks and yearbook production [5]. The shift towards digital yearbooks is gaining momentum, with many colleges choosing a digital-only format [6]. This transition is not just about preserving memories but also about adapting to contemporary communication practices. Online communication, including chat systems, has become integral in daily life, facilitating connections and interactions among students [7].

In the Philippines, a notable shift toward digital yearbooks has been advocated at the national level. Education Secretary Armin Luistro emphasized the need for schools to abandon printed yearbooks, citing the unnecessary financial burden they place on students. He suggested that digital yearbooks, which can be produced much more cost-effectively, are the way forward. This move aligns with the Department of Education's stance against excessive spending on graduation programs, advocating for voluntary contributions for yearbooks and cost-efficient digital formats. Luistro's position highlights the growing trend towards digital solutions in education, emphasizing their cost benefits, modern relevance, and creative potential [8]. The system serves as a valuable tool for alumni, keeping them informed about the latest news and forthcoming events at their alma mater. Its internet-based accessibility enables easy connection from any location. Moreover, this system is particularly beneficial for alumni residing overseas, facilitating their engagement with peers and the institution, regardless of geographical distances. The diverse life experiences of each graduate, which may be of interest to others, can also be shared through this online alumni information system, fostering a sense of community and shared history among former students [9]. According to Early and Alhuda [10] a requisite information system, designed to supply comprehensive alumni data, is essential for facilitating straightforward and efficient access to such information. This system is intended to simplify the process of obtaining detailed alumni data, ensuring that users can easily gather and utilize the information they need.

Lastly in the context of respecting copyright and privacy, incorporating student yearbooks into an institution's digital collections can be a significant enhancement. Institutions contemplating the digitization of their yearbooks should conduct a comprehensive inventory of each edition, ensuring the inclusion of all issues and any variations in titles. Yearbooks hold substantial historical value for any institution. Acknowledging their historical significance and role in preserving institutional memory, and upon careful consideration of copyright and privacy implications, yearbooks stand out as a prime candidate for future digitization initiatives within an institution's archival program [11].

Specifically, this software development dealt with the following concerns:

1. How may the Digitalized Yearbook be developed using the Waterfall Model?

- 1.1 Requirements Specification;
- 1.2 Planning;
- 1.3 Designing;
- 1.4 Development/Implementation;
- 1.5 Testing;
- 1.6 Deployment;
- 1.7 Maintenance;

2. How may the Digitalized Yearbook be evaluated by the IT Experts and the End-Users who are the students of an academic institution based on the following attributes or criteria?

- 2.1 Functional Suitability;
- 2.2 Performance Efficiency;
- 2.3 Compatibility;
- 2.4 Usability;
- 2.5 Reliability;
- 2.6 Security;
- 2.7 Maintainability;
- 2.8 Portability

## 2. METHODOLOGY

This section outlines the research methodology employed in the study, encompassing the research design, research environment, research participants, research instruments, data gathering procedure, data analysis, and statistical treatment.

### 2.1 Research Design

The Waterfall Model, recognized for its structured and linear approach to software development, has been selected for the project ensuring distinct phases like design, development, testing, and deployment, with specific deliverables and timelines. Its linear progression aids in effective planning, scheduling, and resource allocation, crucial meticulous planning needs. Its division of labor structure allows team members to focus on their expertise, enhancing work quality and efficiency in structured team environment. Furthermore, the development of this system also incorporated the recommendations of the IEEE (Institute of Electrical and Electronics Engineers) in the field of software engineering. This recommendation pertains to a collection of standards and best practices set forth by the IEEE, aimed at guiding the development, documentation, and maintenance of software projects. These guidelines encompass various facets of software engineering, such as requirement analysis, design, coding, testing, and documentation. Compliance with IEEE standards ensures the high quality, reliability, and maintainability of software projects. These norms foster consistency and interoperability in software development, facilitating collaboration and mutual understanding among different teams. Moreover, adherence to IEEE's software engineering recommendations boosts the credibility and trustworthiness of software products, which is advantageous for both developers and end-users.

## 3. RESULTS

The creation of the digitalized yearbook was achieved using the waterfall software development model, incorporating the IEEE's recommendations in software engineering. The stages involved in the complete development process are detailed and examined below.

### 3.1 Requirements Specification

The specification of requirements is pivotal in the creation of software systems. It delineates and formally records both the functional and non-functional needs of the software, ensuring alignment with its designated objectives and the anticipations of its users. In this phase, the development team undertook a meticulous process of data collection from the student body, school faculty, and owners of printing shops. These groups were identified as the primary end-users for the project. The activity was centered in Pagadian City, Zamboanga del Sur, Philippines, and focused on gathering detailed insights into inventory management processes, as well as the specific challenges and difficulties encountered by these users. The information collected during this phase was instrumental in shaping the direction and focus of the subsequent stages of the project.

### 3.2 Planning

The planning phase holds a critical position in the entirety of the development process. It involves a meticulous definition and arrangement of project goals, specific requirements, available resources, and potential constraints. This organization is vital for the successful implementation of the software project. During this phase, developers crafted an extensive plan, functioning as a navigational tool across the project's lifecycle. This plan, akin to a blueprint, detailed the sequential steps, allocated resources, and identified risks requiring management. As the development process evolved, changes inevitably surfaced. Therefore, regular reviews and updates became crucial to integrate newly emerging requirements throughout the software development journey.

### 3.3 Designing

This phase represents a vital stage in the software development cycle, where it converts the previously collected requirements into an elaborate design. This design acts as an additional blueprint for constructing the software system. Specifically, the system is devised as a web-based application tailored to facilitate students in processing their clearances online. Additionally, the design incorporates features that allow office heads or authorized personnel to either approve or disapprove such clearances. This functionality aims to streamline and enhance the efficiency of the clearance process.

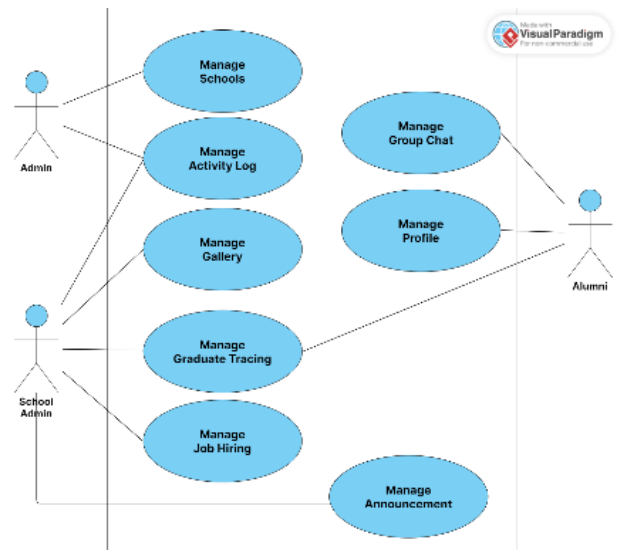
#### a. Technical Specification

This system incorporates several integral components, including an already existing website where the system is embedded. The required hardware for operation comprises either a PC or a smartphone. The system's administrative functions are managed by printing shops, responsible for adding schools and their students to the system. Additionally, school administrators play a vital role in facilitating the system for their respective student bodies. Lastly, the students themselves are the end-users of this system. These components collectively form the fundamental building

blocks of the system, each contributing to its overall functionality and effectiveness: HTML5, PHP, Bootstrap, JavaScript, MySQL, CSS and ChartJS.

#### b. Use-Case Diagram

A use case diagram serves as a visual tool to depict the functional requirements and interactions of a system from the vantage point of its end users. Its foremost aim is to deliver a lucid and overarching view of the manner in which these end users engage with the system. This diagram is instrumental in offering insights into the system's functionality, highlighting the various ways in which users can interact with and utilize the system.

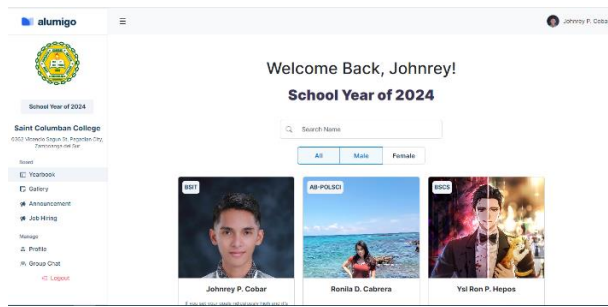


**Figure 1:** Use Case Diagram of Pages to Screen: Digitalized Yearbook with Chatbox and Gallery

Figure 1 illustrates the overall use case of the system, clearly depicting the distinct roles each user type plays within it. Alumni users have the capability to manage their profiles, which is advantageous for school administrators to trace alumni through their data. The primary admin has the authority to add schools to the system. Additionally, school administrators are empowered to manage a range of features, ensuring a versatile and dynamic user experience within the system.

#### c. Interface Design

The interface design of a system pertains to its graphical user interface (GUI), through which users engage to execute pertinent tasks or access the system's functionalities. This design is crafted to offer users a smooth and effective experience during their interaction with the system, enhancing usability and user satisfaction.



**Figure 2:** Dashboard of the Digitalized Yearbook

Figure 2 presents the interface of the Digitalized Yearbook, where alumni can view their batch mates. Through this interface, alumni have the capability to navigate the system, access announcements, view job hiring opportunities, and interact with other alumni via group chat. Additionally, they can view pictures and videos uploaded by the school administrator. The interface also allows alumni to edit their personal details and update their graduate tracing form, ensuring a comprehensive and interactive experience.

### 3.4 Development Implementation

In this phase, the tangible creation and coding of the software or system take place. Following the crucial steps of planning and design, the developers now engage in writing the code according to the detailed design specifications established in the preceding phase. This stage represents the concrete realization of the functionalities and features that were previously outlined. As specified earlier, this system is a web-based application. The actual development process employs technologies such as HTML5, PHP, MySQL, JavaScript, Bootstrap, ChartJs, and CSS, which serve as the fundamental components of the system's architecture.

### 3.5 Testing

This phase is pivotal in confirming that the system conforms to the specifications set out during the planning stage. Software testing, conducted throughout various stages of development, plays a crucial role in consistently identifying and addressing issues. This rigorous testing process is essential to ensure that the software meets the desired quality standards. The testing focused on functional requirements has produced overall positive and acceptable outcomes. An in-depth analysis of the test results, combined with the aggregation of survey scores obtained during the testing phase, has been conducted. In evaluating key aspects such as the absence of bugs, fulfillment of performance requirements, and the logical flow of the system, it achieved an impressive score of 56.78 points. This score translates to an effectiveness rate of 94.63%, which signifies more than mere technical adequacy. It represents a harmonious blend of functionality, reliability, and a design that centers on the user experience.

### 3.6 Deployment

The deployment phase is dedicated to preparing the system for integration into its target environment, making it accessible and functional for the intended end-users. As with the other phases in the system development life cycle, deployment is a crucial step that demands careful planning, coordination with the client, and additional testing to guarantee its successful application. While the client has already accepted the system, the specific printing shop designated for the system's installation is currently in the midst of incorporating it into their operational framework, in anticipation of its use for upcoming graduation events. During this process, various considerations have been taken into account to ensure the seamless and effective integration of the system into their daily operations.

### 3.7 Maintenance

#### 3.7.1 IT Experts and Students Evaluation of the Digitalized Yearbook

The researchers conducted a test on the website, which was used by 61 participants. Among them, 16 were technical users and 45 were non-technical.

The Functional Stability score of 94.54% demonstrates the system's consistent performance and its ability to function as expected under various conditions, indicating a reliable system for users.

With a Reliability score of 91.72%, the system proves to be dependable and capable of consistently performing its intended functions under normal conditions, crucial for user trust.

The system's excellent portability score of 91.93% signifies its flexibility and ease of adaptation across different environments or platforms, vital in today's diverse tech landscape.

A Usability score of 93.17% reflects the system's user-friendliness, showing that it is intuitive, easy to navigate, and accessible, which is key to a positive user experience.

The Performance Efficiency score of 90.82% reveals the system's ability to maximize performance while minimizing resource use, essential for operational effectiveness.

Scoring 91.87% in Security, the system demonstrates robustness in data protection and defense against unauthorized access or breaches, a critical element in the digital age.

The Compatibility score of 96.23% indicates the system's effectiveness in various environments and with different systems or components, ensuring wide applicability.

With a Maintainability score of 92.66%, the system is shown to be easy to update, modify, and troubleshoot, essential for its long-term sustainability and relevance.

#### 4. CONCLUSION

The Digitalized Yearbook, following a thorough analysis of test outcomes and a compilation of survey results obtained during testing, has showcased exemplary performance. In evaluating key parameters such as bug-free operation, fulfillment of performance specifications, and logical coherence, the system achieved a notable score of 56.78 over 60.00 points. This equates to an effectiveness rate of 94.63%. Such a remarkable score places the system in the 'Excellent Functional' category, as per our predefined standards. This high rating extends beyond mere technical competence, encapsulating an effective amalgamation of functionality, dependability, and a design that prioritizes user needs.

The system enhances security by allowing only authorized individual's access. Its efficiency is derived from its paperless methodology, the utilization of cloud storage, and the convenience of online access. Usability, a critical aspect of the system, is emphasized through a user-friendly interface that simplifies the execution of all necessary operations.

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