

ARDHIUNIVERSITY



**SCHOOL OF EARTH SCIENCE, REAL ESTATE, BUSINESS AND INFORMATICS
(SERBI)**

DEPARTMENT OF COMPUTER SYSTEM AND MATHEMATICS (CSM)

**BACHELOR OF SCIENCE IN INFORMATION SYSTEM MANAGEMENT (BSc.
ISM)**

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1.0 INTRODUCTION

1.1 General introduction

At Ardhi university or any other university or college at the end of each semester students they did examinations, these examinations supervised by examination coordinators, quality assurance officers and examination supervisors(lectures), the currently system that controlling the examination is manual tracking activities with manual using papers for keeping tracking records, manual counting of booklets, these manual activities often faced with challenges such as a lack of real-time visibility into exam booklet usage, manual data entry leading to errors and delays, and inefficient communication among stakeholders. Lecturers struggle with a disjointed process for booklet allocation, hindering overall efficiency. The absence of a centralized system makes it difficult to generate detailed reports on booklet usage and perform cost tracking. To address these issues, a proposed web and mobile-based system aims to streamline processes, enhance communication, and provide real-time tracking and reporting capabilities, ultimately improving the overall efficiency and effectiveness of university examination coordination management activities.

Various researchers have highlighted the importance's of digital tracking of examination through online system or challenges associated with using manual activities on controlling examination. For instance,(Li & Shu, 2024) emphasis on immediacy in examination administration, as suggested by the authors, reinforces our objective to provide a platform that ensures timely and accurate coordination and reduce or remove manual tracking activities. (Mergel, 2012), emphasized that by integrating paperless processes, our system can contribute to reduced environmental impact, streamlined workflows, and increased accuracy in examination coordination. These insights from prior research undercore the need for a digital, accuracy activities through system to address the gap in university examinations processes.

The gap in existing literature revolve around the absence of digital integrated web and mobile platform at one that will help to keep tracking examinations processes through automated system. While some tool address individual aspects, there is not exactly good solution that provide a well and user friendly for examination coordinators, quality assurance officers and examination supervisors(lectures) to automates their activities in simplified way. The research seeks to fill these gaps by developing and implementing an innovative university examinations coordination management tool that fill up to the need of examination supervisors to simply examination processes.

1.2 Problem Statement

The existence activities of university examinations coordination management system are manually activities with lack of real-time tracking of exam booklets, manual data entry leading to errors and delays, difficulty in coordinating between quality assurance officers, examination coordinators, and lecturers (examination supervisors), result in increased chances of errors in exam material management ineffective utilization of examination resources, challenges in

meeting quality assurance standards, challenge in keeping track number of booklet used and unused and keep cost assurance.

A specific knowledge gap in literature review address to the absence of comprehensive research that assure the challenges that faced by examination coordinators, quality assurance officers and examination supervisors(lecturers) in utilizing digital activities through automated system for effective tracking examination processes. The knowledge gap emphasizes the need for a university examinations coordination management solution that account for the unique requirement and solve manual tracking in examination processes.

Furthermore, the existing literature(Huang, 2023), predominately focuses on traditional frameworks and failure to address empirical studies on the implementation and impact of a unified university examinations coordination management tool. Understanding how such a tool is adopted, utilized and tangible effects on the examination processes is a critical aspect that remains largely unexplored. Thus, this research seeks to address the gap by not only conceptualizing an integrated university examinations coordination management tool but also by empirically evaluating its effectiveness and automated implication in real-word examination processes settings.

1.3.1 General Objective

To develop University Examinations Coordination Management both web based and mobile application.

1.3.2 Specific Objectives

- i.To collect and gathering information for Examinations Coordination Management both web based and mobile application.
- ii.To design user-friendly mobile and web application interface for Examinations Coordination Management both web based and mobile application.
- iii.To implement a robust and scalable web based and mobile application, allowing to keep track examination activities through automated system.
- iv.To conduct usability testing and gather feedback for Examinations Coordination Management both web based and mobile application features and user experience.

1.4 Research Questions

In this study, the following questions will be answered:

- i. What are the current challenges faced by examination coordinators, quality assurance officers, and examination supervisors (lecturers) in the manual tracking of examination processes?
- ii. How do manual tracking activities impact the efficiency and accuracy of university examination coordination management?
- iii. How can a web and mobile-based system contribute to real-time tracking of exam booklets, reducing errors, and improving communication among stakeholders?
- iv. What existing literature supports the need for a digital, integrated web and mobile platform to streamline university examination coordination management?
- v. How have previous studies addressed the challenges faced by examination coordinators and supervisors, and what gaps remain in the literature?

1.5 Significance of the study

The proposed research on the development of a web and mobile-based University Examinations Coordination Management system holds significant importance. The current manual tracking system for examinations at universities, including Ardhi University, faces numerous challenges such as a lack of real-time visibility, errors in manual data entry, and inefficient communication among stakeholders. The absence of a centralized system hinders overall efficiency, making it difficult to generate detailed reports and perform cost tracking. Previous studies, like those by (Onche, 2023), have emphasized the need for digital tracking in examination administration and highlighted the benefits of paperless processes.

Furthermore, the existing literature, as highlighted by Ana and (Li & Shu, 2024) in their work on the design and implementation of an online examination administration system for universities, emphasizes a significant gap in the absence of a comprehensive, integrated web and mobile platform tailored specifically for the needs of examination coordinators, quality assurance officers, and examination supervisors. This research seeks to address this identified gap by developing and implementing an innovative tool that not only streamlines processes but also addresses the unique requirements of examination supervisors, providing a user-friendly solution. The study's significance lies in its potential, as noted by Zheng and Sarem (2022), to improve overall efficiency, accuracy, and communication in university examination coordination management through the implementation of a digital, automated system.

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter will cover previous studies that done by other writers that have a similar or with closed related topic to this current project where I used these studies as a raw material or source of information/requirement for my project, as previously researchers were based only in University Examination Automated Management System.

2.2 Related Works

The Automatic and Continuous Online Examination Monitoring system (Ghizlane, M, et al., 2019). developed with the aim of ensuring robust authentication and real-time monitoring during online examinations, focuses on leveraging advanced technologies such as face recognition and machine learning. This approach safeguards the integrity of the assessment process, addressing the challenges of maintaining exam security in virtual environments. Additionally, the project emphasizes identity verification and the preservation of academic integrity in online exams, tackling the ease of accessing external resources or seeking unauthorized assistance. Technologies that was used includes as machine learning algorithms and computer vision techniques for identifying and verifying the identity of individuals taking online exams, PHP for server-side scripting, JavaScript (JS) for client-side interactivity, and HTML/CSS for building the frontend interface of the online examination platform and MySQL database for storing data.

Another related work is Experiences of University Staff in Online Proctored Examination(Study, 2022). This research delves into the initial experiences of university faculty members, administrators, and technical officers (staff) with online proctored examinations during the COVID-19 pandemic. Through a qualitative interpretive paradigm study, the authors explore the perceptions, opportunities, and challenges faced by staff members while utilizing online proctoring tools in both final and entrance exams. The study involved eight faculty members, one administrator, and one technical officer who participated in online proctored examinations for the first time in mid-2021, sharing their insights and concerns regarding the experience. The findings of the study shed light on various aspects of staff experiences with online proctored examinations, emphasizing their concerns over time efficiency, administrative burdens, and the frequency of examinations. Additionally, the study highlights challenges such as technology compatibility, doubts regarding academic integrity and reliability, and the future impact of implementing online proctored examinations. The research contributes to understanding the opportunities and challenges of online proctored examinations from the perspective of university staff in technologically developing countries. Technologies that was used includes as, Web development technologies: PHP, JavaScript (JS), HTML, CSS for building the online examination platform's frontend interface and interactivity, Database management system: MySQL or another relational database management system (RDBMS) for storing examination data, user information, and results and Online proctoring software: Specific software solutions designed for monitoring and proctoring online examinations, which may incorporate various technologies for webcam monitoring, screen recording, identity verification, etc.

Also another review is IoT-Based Biometric Recognition Systems in Education for Identity Verification Services(Rukhiran et al., 2023) . Author on this review was develop system that allow faculty members, administrators, and technical officers experience and navigate the implementation of online proctoring for final and entrance exams. Also evaluate biometric recognition systems based on IoT technology for identity verification services in educational settings. The study aims to develop flexible biometric recognition systems and assess their quality for educational use. The technology used in this study includes IoT (Internet of Things) technology for system development, as well as various biometric recognition technologies such as facial recognition and fingerprint identification.

Online Exams Solutions in E-Learning (Muzaffargarh, A. W, Rasheed,2021).

Another related work is Online Exams Solutions in E-Learning (Muzaffar,2021). At this review author explain that E-learning is to provide a comprehensive overview and analysis of various aspects related to online exam solutions within the context of e-learning and also has witnessed significant growth, especially in higher education, over the past decade due to its advantages in critical situations like natural disasters and pandemics. Online exams play a crucial role in this domain but pose challenges such as integrity and security. This systematic literature review (SLR) analyzes 53 studies published between January 2016 and July 2020 to identify leading online exam features, development approaches, techniques, tools, datasets, and factors influencing global adoption. The review protocol includes criteria

for study selection based on subject relevance, application research, publication year, publisher, validation of proposals, and repetition.

Another review is Secure Online Examination with Biometric Authentication and Blockchain-Based Framework(Volume,2021). The authors of this review explain that Online examination allows an institute to arrange, conduct, and manage examinations via an online environment. It assists the inspector with reducing the work of leading exam, checking answer sheets, and producing result. So, online exams have gained a lot of popularity in the past few years. Okada et al. pointed out that although a lot of young students share their personal data in their social networks, in the context of e-assessment, their attitude is different because they are more concerned about data privacy, security, and safety. Also propose the use of Blockchain-Based Online Education for funding needy students based on the concept of blockchain technology. Not only that but also suggest a new proposal of devising a security and privacy-preserving design mechanism of data transactions in educational microservices leveraging the blockchain technology, which has high survey acceptance in terms of confidentiality, integrity, and availability. Deenmahomed et al. and finally explain that it focused on the design and implementation of an examination, transcript, and certificate system using blockchain, where credits transaction is created when a student completes a course, and a mobile wallet is provided to allow students to have a copy of their certificates.

The next one review is Web-based online examination system (Modeling, 2009). Authors at this review was implement web-based online examination system to addresses the shortcomings of traditional manual examination processes by offering a comprehensive solution that automates exam administration, reduces paperwork, and ensures the integrity and security of the examination process. Also explain Through the use of web technologies, students can conveniently take exams from any location with internet access, eliminating the need for physical presence at examination centers. The system's modular design allows for easy management of user accounts, question databases, and exam schedules, facilitating efficient examination management for administrators and instructors. Moreover, the system's emphasis on security features and data encryption ensures the confidentiality and integrity of sensitive information, safeguarding the examination process against unauthorized access or tampering. Technologies used was JavaScript, java, and MySQL database Overall, the implementation of this web-based online examination system represents a significant advancement in modernizing educational assessment practices and enhancing the overall efficiency and effectiveness of examination procedures in educational institutions.

Also Another review is Design of a Student's Online Examination System Based on B/S Architecture(Wang,2006). This review authors outlines the design and implementation of an online examination system, focusing on key database tables essential for managing student information, examination papers, and examination questions. It describes the structure and attributes of important tables such as the Students table (t_student), Exam-paper table (t_test), and Examination question table (t_questions), highlighting their primary keys, foreign keys, and data types. And also developing an online examination system by detailing the design of essential database tables and their relationships. It aims to provide a framework for managing student data, examination papers, and questions efficiently within the system, thereby facilitating the automation of examination processes and enhancing the overall effectiveness of online assessments. Technologies used was MySQL and Oracle databases.

2.3 Research Gap

The new University Coordination Management System we're proposing will perform a lot of the things that past systems they did, but with simply technologies and user -friendly environments. Unlike before, where researchers only focused on more on automated examinations only that not fit too to this new proposed system, our system now will also include new features for University Coordination Management System. This also is a modern and important feature that sets our system apart and keep a new system more looking good, high performance well functionalities and unique features. In the past, people mainly worked on systems or apps just for did examinations and provides results through online system, but we're bringing everything together and add new important feature were past researchers not includes. Our system will have both features or portions of mobile app and a web app for users. Plus, we're keeping things with minimum costing, scalable one, user-friendly one, securable one and with hight looking by user interfaces with supporting of free and open-source technologies, also with well-arranged budget compared to previous systems that use were unlog one technologies like JQuery, Coding Liter that makes with minimum perfomance.

s/n	Author's name & year	HTML/ CSS	FLUTTER	JAVA	JAVASCRIPT	PHP	MYSQL DB	POSTGRE SQL	IA	MACHINE LEARNING	BLOCK
1	(Ghizlane, M, et al., 2019)	✓	x	x	✓	✓	✓	x	x	x	x
2	(Study, 2022)	✓	x	x	✓	✓	✓	x	x	x	x
3	(Rukhiran et al., 2023)	x	x	x	x	x	x	x	x	x	x
4	(Muzaffar,2021)	x	x	x	x	x	x	x	x	✓	x
5	(Volume,2021)	x	x	x	x	x	x	x	x	x	✓
6	(Modeling, 2009) (Volume,2021)	x	x	✓	✓	x	✓	x	x	x	x
7	(Wang,2006) (Modeling, 2009)	x	x	x	x	x	✓	x	x	x	x
8	(Wang,2006)										
9											

Table 2.3.1 Summary of literature review

3.METHODOLOGY

SPECIFIC OBJECTIVE	METHODOLOGY	DELIVERABLE
To collect and gathering information for Examinations Coordination Management both web based and mobile application.	Literature Riviews,Questionnaires	User Requirement Specification Document.
To design user-friendly mobile and web application interface for Examinations Coordination Management both web based and mobile application.	Object-Oriented Analysis and Design (OOAD)	System Design Document
To implement a robust and scalable web based and mobile application, allowing to keep track examination activities through automated system.	Agile Architecture	Full Functional University Examination Coordination management tool
To conduct usability testing and gather feedback for Examinations Coordination Management both web based and mobile application features and user experience.	User Acceptance Testing (UAT)	Test and validation evaluations

4.0 SCHEDULE OF ACTIVITIES

At this chapter/portion, it describes the various scheduled activities that have been planned for this system. These

activities are carefully planned to ensure that the project will be completed within the specific respective timeframe and budget/fund. To keep track of the progress of the project, a Gantt chart has been prepared that outlines the various tasks involved in the project and the expected duration of each task. This

Gantt chart will provide a clear and concise overview of the project timeline and help to track the progress of the project until done. Below is actual planned scheduled include as

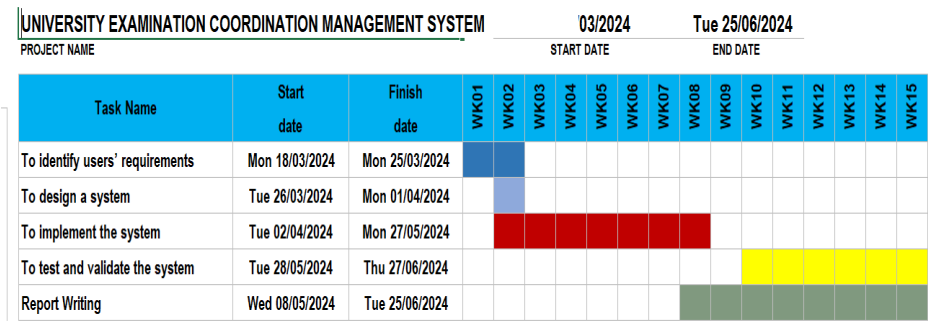


Figure 4.1 Gantt Chart to show scheduled activities

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