

UNIVERSITY CLEANERS MANAGEMENT SYSTEM

1. Background Information

The management of university cleaners has historically been a challenge due to the lack of a structured system for registering, assigning work areas, and managing their attendance. The absence of an organized approach led to variance in the count of workers, has hindered the university's ability to maintain an optimal number of cleaners, resulting in either over-staffing or under-staffing in certain areas, affecting overall efficiency. Also, in terms of tool misplacement, this has caused disruption to the cleaning routines and expenses associated with replacing lost items. This issue not only impacts the operational flow but also causes additional costs that could be avoided with a more organized approach.

Simultaneously in handling not only cleaners' claims but just as well from the university staffs from their offices. Without a streamlined process, addressing and managing claims, it can inefficiency affect the overall quality of service delivery

Introduction

This project aims to address the deficiencies of the previous manual system by developing a web-based computerized platform specifically designed for managing university cleaners. The system intends to streamline the registration process, effectively assign work areas, and automate attendance management. By creating a centralized database, this solution aims to ensure accurate records of the workforce, minimize tool loss, and enhance the management of cleaners' claims.

Sections Overview

- i. **Registration Module:** This cornerstone module will involve cleaner registration process, eliminating redundant paperwork and minimizing administrative bottlenecks.
- ii. **Assignment and tasks Management:** This module will intelligently allocate cleaners to specific working areas based on their skills and availability, ensuring a balanced workload distribution.
- iii. **Attendance Automation:** This module aims to alleviate the manual burden of attendance management, providing and enhancing accountability.
- iv. **Claims Management:** A structured system will be designed to efficiently handle cleaners' claims, streamlining the process and approaching to cleaner satisfaction. The claims will be also managed for the side of university staffs including lecturers and other administrative workers from their offices
- v. **Tools Management:** Complementing the overall framework, this module will oversee the management of tools, mitigating loss incidents and ensuring the availability of essential resources for seamless operations.

2. Preliminary Study and Problem Statement

Investigation of the System:

The current system managing university cleaners relies predominantly on manual processes for registration, work area assignment, and attendance tracking. This traditional method involves paper-based registration, manual allocation of work areas which are leading to inefficiencies. The physical system comprises paper records, manual schedules, contributing to challenges in accurately tracking cleaner information and managing their tasks effectively.

Within this operational landscape, the registration process relies on physical paperwork, necessitating manual entry and management of cleaner details. Similarly, the absence of an automated approach not only affects the accuracy of these assignments but also impact the overall efficiency of the cleaning staff. Additionally, the reliance on manual tracking for attendance further compounds these inefficiencies, resulting in difficulties in maintaining accurate records of cleaner presence and activity.

The disjointed nature of these manual processes has led to gaps in information, hindering effective decision-making and impacting the operational inefficiency of managing university cleaner

Problem Statement:

The existing manual system for managing university cleaners has resulted in multifaceted challenges. Primarily, the lack of a structured approach has led to inaccuracies in workforce counts, causing either over-staffing or under-staffing in specific areas. Tool misplacement due to the manual tracking system has disrupted cleaning routines and incurred unnecessary expenses in replacing lost items. Additionally, the inefficient handling of cleaners' claims, stemming from the absence of a streamlined process, has affected staff service quality.

These problems are further raised by the limitations in manual systems, such as data *inconsistencies, human errors, and time-consuming administrative tasks*. The reliance on outdated methods has hindered the university's ability to maintain an optimal workforce, ensure efficient resource allocation, and provide a conducive work environment for cleaners. The identified problems implies the critical need for a comprehensive solution that integrates technology to streamline processes, enhancing accuracy, and optimize cleaner management.

3. Project Background and Motivation

Background

The landscape of managing university cleaners is seem to be irregularly yet relying on manual processes for crucial aspects like registration, work area allocation, tools monitoring and attendance tracking. So, the previous attempts have showcased limited integration of technology, often resulting to inefficient management systems and

inadequate resolution that implies to the challenges in accurately managing cleaner information and their tasks within university settings.

Motivation

The significance of this project lies in bridging the significant gap between the existing manual systems and the potential for a efficiency as well as technology-driven approach to manage university cleaners. The motivation bases from the observed deficiencies on the previous attempts.

By addressing the shortcomings of manual processes , this project aims to not only enhance operational efficiency but also elevate the quality of service delivery. The overarching goal is to create a trans-formative solution that can not only address existing gaps in cleaner management but also sets an instance of efficient support staff management within university settings. The phase of previous studies and the identified knowledge gap serve as the matter of this project towards effective approach to the cleaner management in academic institution

4. Proposed Solutions and Scope

Envisioned System Utilization:

The proposed system is designed to modify the management of university cleaners by introducing a comprehensive, web-based platform that streamlines key processes. This solution envisions a user-friendly interface accessible to administrative staff for registration, efficient assignment of work areas, and automated attendance tracking. Through this system, administrators will have the capability to register new cleaners, assign specific work areas based on expertise and availability, and monitor attendance. Moreover, cleaners will have access to their assigned tasks, schedules, and any necessary updates through a dedicated interface, enhancing communication and task management.

Advantages Over Current Practice:

Compared to the current manual practices, this solution offers multifaceted advantages. Firstly, the transition from paper-based registration to an automated system minimizes administrative burdens, reducing errors and enhancing data accuracy. Secondly, the automated assignment of work areas ensures optimized distribution, mitigating over-staffing or under-staffing issues prevalent in manual allocation. This technological shift will not only streamline operations but also enhance cleaner satisfaction and overall service quality.

Envisioned Benefits:

The proposed solution aims to yield substantial benefits for the university's cleaning management. It anticipates enhanced operational efficiency through streamlined processes, reduced administrative workload, and optimized resource utilization. The centralization of cleaner information within a robust database will improve data

accuracy, aiding in better decision-making. Moreover, the system's accessibility and transparency will empower cleaners with clearer task assignments, schedules, and avenues for communication, thereby bringing up a conducive work environment. Ultimately, this solution elevates the overall standards of cleaner management within the university, aligning with modern technological advancements for a more efficient and effective operational paradigm.

Scope and Main Functions:

The proposed solution encompasses a range of main functions crucial to efficient cleaner management. These include:

- i. Registration Module: Simplifying and automating the cleaner registration process.
- ii. Assignment Management: Automated assignment of work areas based on cleaner skills and availability.
- iii. Attendance Automation: Implementing attendance tracking systems.
- iv. Database Integration: Centralizing cleaner information within a secure and accurate database.
- v. Communication Interface: Providing a user-friendly interface for cleaners to access tasks, schedules, and updates.
- vi. Task and Schedule Management: Facilitating efficient task allocation and schedule management for cleaners.
- vii. Administrative Dashboard: Offering administrative staff an intuitive interface for overseeing cleaner management tasks.

The proposed system's scope encompasses these essential functions to address the identified gaps and revolutionize cleaner management within the university setting.

5. Main Aim and Specific Objectives

Main Aim:

The primary objective of this project is to design and implement a comprehensive web-based system for managing university cleaners, aiming to modify and streamline the entire process for enhanced efficiency and effectiveness.

Specific Objectives:

- Creating Cleaners Interface for Task Management: Develop a dedicated interface for cleaners to access task assignments, schedules and enhancing their workflow management.
- Managing Cleaners resources including tools
- Managing Cleaners Claims
- Managing Cleaners personal records
- Managing Cleaners Departments based on their skills

6. Resource Requirements

Hardware:

Computing Devices: Workstations and laptops for development purposes.

Software:

- Development Environment: Integrated Development Environment (IDE) such as IntelliJ IDEA
- Programming Language: Java for back-end development and React library for front-end
- Database Management System (DBMS): MySQL for database storage and management.
- Version Control: Git for version control and collaboration.

7. Significance of the Study

This study holds considerable significance within the realm of university cleaner management due to its multifaceted impact on operational efficiency, resource optimization, and employee satisfaction. Several key aspects underscore the importance of this project:

Operational Efficiency Enhancement: By transitioning from manual systems to a web-based platform, the study aims to streamline processes, reducing administrative bottlenecks associated with cleaner registration, task allocation, attendance tracking, and claims management. The automation of these tasks promises a significant boost in operational efficiency.

Resource Optimization: Through tools management modules, the study has led to optimize resource allocation. This includes efficiently assigning cleaners to specific tasks based on skills and availability, minimizing tool loss incidents, and ensuring adequate availability of cleaning resources. Such optimization not only saves costs but also ensures smoother operations.

8. Expected contribution and implications of the project

Advancement in ICT for Operational Optimization:

Global Context: The project's emphasis on resource optimization through tools management modules offers a model for efficient resource utilization. This model contributes to global conversations on sustainability by reducing waste and ensuring optimal resource allocation.

Regional/Tanzania Context: In a regional or Tanzanian context, the implementation of such resource optimization strategies sets a standard for responsible resource utilization. It aligns with efforts towards sustainability and efficient resource management within educational institutions.

Technological contribution for Future Adaptability:

Global Context: The documentation and design of the web-based platform offer a technological design for future scalability and adaptability of similar systems globally. This contributes to the discussion on adaptable and future-proof ICT solutions.

Regional/Tanzania Context: Within the regional or Tanzanian context, the project's technological design provides a framework for other institutions to follow suit in adopting adaptable ICT solutions. It facilitates easier upgrades and adaptations to meet evolving needs.

9. Project Scheduling

- i. Requirements collections and analysis - 5 days
- ii. Prototyping - 3 days
- iii. Risk management - 4 days
- iv. Architectural design - 6 days
- v. System documentation - 9 days
- vi. User interface - 10 days
- vii. Implementation - 3 months
 - Registration Module: This cornerstone module will involve cleaner registration process, eliminating redundant paperwork and minimizing administrative bottlenecks.
 - Assignment and tasks Management: This module will intelligently allocate cleaners to specific working areas based on their skills and availability, ensuring a balanced workload distribution.
 - Attendance Automation: This module aims to alleviate the manual burden of attendance management, providing and enhancing accountability.
 - Claims Management: A structured system will be designed to efficiently handle cleaners' claims, streamlining the process and approaching to cleaner satisfaction. The claims will be also managed for the side of university staffs including lecturers and other administrative workers from their offices
 - Tools Management: Complementing the overall framework, this module will oversee the management of tools, mitigating loss incidents and ensuring the availability of essential resources for seamless operations.
- viii. Integration - 8 days
- ix. Testing - 5 days
- x. Training - 4 days

10. Financial Implications

Personal Cost:

Project Manager: 0 TSH/-

Software Developer : 0 TSH/-

UI Designer: 0 TSH/-

Database Administrator: 0 TSH/-

Total Personnel Costs: 0 TSH/-

Equipment and Software:

Computers and Laptops: 300,000 TSH/-

Software Licenses (Development Tools): 0 TSH/-

Total Equipment and Software Costs: 300,000.00TSH/-

Consulting and External Services:

Data Analysis Consultant: 0 TSH/-

Security Audit: 0 TSH/-

Total Consulting and External Services:0 TSH/-

Marketing and Promotion:

System Launch and Promotion: 200,000TSH/-

Total Marketing and Promotion Costs: 200,000TSH/-

Total Project Budget:

- Personnel Costs: 0 TSH/-
- Equipment and Software: 300,000.00TSH/-
- Consulting and External Services: 0 TSH/-
- Marketing and Promotion: 200,000TSH/-
- Total Project Budget: 500,000TSH/-

GANT CHART

PROJECT TASK	START	END	DAYS
1. LAUNCHING			
Launching a final year project	20-Nov-23	20-Nov-23	1
Supervisor Allocation	20-Nov-23	24-Nov-23	5
Title and project proposal submission	27-Nov-23	1-Dec-23	5
Project proposal presentation	5-Dec-23	5-Dec-23	1
2.PLANNING			
Requirement collection and analysis	6-Dec-23	12-Dec-23	5
Religious consultation	12-Dec-23	15-Dec-23	4
User experience	17-Dec-23	21-Dec-23	4
Prototyping	22-Dec-23	26-Dec-23	3
Risk management	26-Dec-23	30-Dec-23	4
3.EXECUTION			
3D modelling	1-Jan-24	14-Jan-24	10
Architectural design	15-Jan-24	22-Jan-24	6
Submission of progress report	22-Jan-24	26-Jan-24	5
User interface	24-Jan-24	1-Feb-24	7
Submission of design document	4-Mar-24	5-Mar-24	2
Design document presentation	6-Mar-24	7-Mar-24	2
Working with the comments provided	8-Mar-24	29-Mar-24	16
Submission of customized design document	29-Mar-24	31-Mar-24	1
Programming or coding	1-Apr-24	1-Jul-24	66
Integration	20-Jun-24	1-Jul-24	8
Testing	1-Jul-24	7-Jul-24	5
Training	5-Jul-24	10-Jul-24	4
4.CLOSURE			

References.

Bradji, Louardi, and Mahmoud Boufaïda. "A rule management system for knowledge based data cleaning." (2011).

Tangwanichagapong, S., Nitivattananon, V., Mohanty, B. and Visvanathan, C. (2017), "Greening of a campus through waste management initiatives: Experience from a higher education institution in Thailand", International Journal of Sustainability in Higher Education, Vol. 18 No. 2, pp. [279-296](#).

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