Department of Information and Communication Technology

Employee Management System

Project Proposal
Group Project 2024

Project ID: 07

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Abstract

In the modern era of service-based industries, effective employee management systems play a pivotal role in ensuring operational efficiency, client satisfaction, and overall organizational success. This report outlines the design, development, and implementation of an employee management system tailored specifically for our client S.E. Himali who owns the company Himali Janitorial and Security services company.

The system aims to streamline various aspects of employee administration, salary calculation, managing leaves and attendance. Our first impression to develop a system for the company is all these years this company maintains the system manually.

Through the implementation of this employee management system, the company anticipates significant improvements in productivity, employee satisfaction, and client service quality. By harnessing technology to enhance organizational processes, the company aims to remain competitive in a rapidly evolving market while ensuring the highest standards of service delivery.

Contents

Chapter 1:

Introduction and Description of the Project

1.1 Introduction

In the fast-paced environment of a cleaning service company, efficient management of human resources is paramount to delivering high-quality services to clients while ensuring smooth business operations. As the company grows and scales its operations, manual methods of managing employee information, schedules, and performance become increasingly impractical and prone to errors. To address these challenges and elevate workforce management practices, we propose the implementation of an Employee Management System (EMS) tailored specifically for the needs of our cleaning service company.

The Employee Management System serves as a centralized platform designed to streamline HR processes, optimize employee scheduling, track performance metrics, and facilitate effective communication among team members. This system is customized to meet the unique requirements of our cleaning service company, offering features such as employee scheduling, task assignment, performance monitoring, and payroll management.

The main intent of this project is to ease the work of unique venture to online manage all the records of their employees by providing them with a software system. Also, a proper employee management system is achieved which is a very tedious and difficult job to handle all employees manually for unique venture.

1.2 Problem Specification

Himali Janitorial and security service is a growing company that provides residential and commercial cleaning services to clients in the local area. As the company expands its operations, it faces challenges in efficiently managing its workforce, schedules, and performance metrics. Manual methods of employee management, such as paper-based scheduling and task assignment, are becoming increasingly cumbersome and prone to errors. To address these challenges and streamline HR processes, Himali Janitorial and security service aims to implement an Employee Management System (EMS).

Our clients do not computerize their system and do not have a centralized database to manage their employee details. All the work is done by manually. All the reports and calculations are done manually. When a system is maintained manually in a company it will occur errors and lead to misunderstandings.

The current manual methods of managing employee schedules, task assignments, and performance tracking at Himali Janitorial and security service are inefficient, error-prone, and hinder the company's ability to deliver high-quality cleaning services to its clients. The absence of a centralized system for employee management leads to scheduling conflicts, suboptimal resource allocation, and difficulty in monitoring employee performance. Additionally, the lack of real-time communication and collaboration tools impedes effective coordination among team members, resulting in delays and inefficiencies.

Manually it is hard to manage all employee details and it is hard to update and store them also. To resolve all problems occurs by the manual systems we are automating the manual system with a centralized database to store all the details of the company employees.

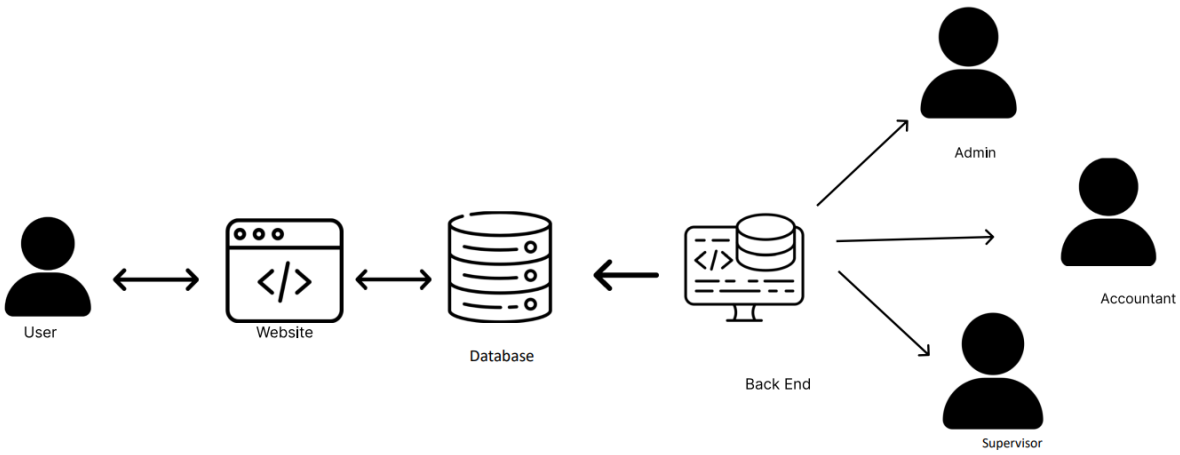


Figure 1 - High level Architecture.

1.3 Solution Outline

- A system to manage employees and calculate their salaries without manual ways.
- Developing centralized database.
- Manages the organization and employees in a better way.
- The current manual or outdated systems in place may result in inefficiencies, miscommunication, and difficulties in tracking employee performance. To address these challenges, the development of a comprehensive Cleaning Service Employee Management System is proposed.

1.4 Key Benefits

- Streamlined Processes
  - Automation of administrative tasks such as scheduling, time tracking, and payroll reduces manual effort and minimizes the likelihood of errors.

- Improved Efficiency
  - By optimizing resource allocation and workflow management, employee management systems enhance operational efficiency.
  - Leads to cost savings and increased productivity.

- Enhanced Communication

    - Centralized platforms facilitate seamless communication among team members, managers, and administrative staff, fostering collaboration.
    - This reduces the misunderstandings.

- Better Compliance
    - Compliance with labor laws, regulations, and company policies is easier to maintain through automated tracking and reporting features.
    - It will reduce the risk of legal issues.

- Performance Tracking and Evaluation
    - Employee management systems enable the tracking of performance metrics and evaluation of key performance indicators, facilitating objective performance assessments and identifying areas for improvement.

- Employee Satisfaction
    - Streamlined processes, clear communication channels, and transparent performance evaluations contribute to higher levels of employee satisfaction, leading to improved morale and retention rates.

- Data-Driven Decision Making
    - Access to comprehensive employee data allows managers to make informed decisions regarding resource allocation, training initiatives, and strategic planning.

- Scalability
    - As organizations grow, employee management systems can easily scale to accommodate larger workforces and expanded operations, ensuring continued efficiency and effectiveness.

- Customer Satisfaction
    - A well-managed workforce leads to better service delivery, ultimately resulting in higher levels of customer satisfaction and loyalty.

- Competitive Advantage
    - By optimizing internal processes and fostering a positive work environment, employee management systems can provide organizations with a competitive edge in the marketplace.

Chapter 2:

Aim and Objectives

Aims

1. Enhanced Efficiency
    - The primary aim of implementing the Employee Management System (EMS) is to enhance the efficiency of HR processes within Himali Janitorial and security service.
    - By automating manual tasks and centralizing employee management functions, the system aims to streamline operations, reduce administrative burdens, and optimize resource utilization.

2. Improved Communication
    - The EMS aims to facilitate better communication and collaboration among team members by providing a centralized platform for sharing information, updates, and feedback.
    - Enhanced communication capabilities will foster a more cohesive and productive work environment.

3. Enhanced Performance Monitoring
    - Another aim of the EMS is to improve performance monitoring and management within the organization.
    - By implementing performance metrics and KPIs, the system will enable managers to track employee productivity, assess performance against predefined goals, and identify areas for improvement.

4. Compliance Assurance
    - Ensuring compliance with labor regulations and company policies is a critical aim of the EMS implementation.
    - By automating time tracking, attendance monitoring, and record-keeping processes, the system aims to mitigate compliance risks and ensure adherence to legal and organizational requirements.

5. Employee Satisfaction
    - Ultimately, the EMS aims to enhance employee satisfaction and engagement within ABC Cleaning Services.
    - By providing employees with self-service features, clear communication channels, and opportunities for feedback, the system aims to improve overall job satisfaction and retention rates.

Objectives

1. Automate Scheduling and Task Assignment
    - Develop functionalities within the EMS to automate the scheduling of cleaning assignments and the assignment of tasks to employees based on their skills, availability, and location.

2. Implement Performance Metrics and KPIs
    - Define and implement performance metrics and key performance indicators (KPIs) within the EMS to monitor employee productivity, quality of work, and adherence to service standards.

3. Provide Communication Tools
    - Implement communication tools such as messaging systems, notifications, and announcements within the EMS to facilitate seamless communication and collaboration among team members.

4. Ensure Compliance
    - Develop features within the EMS to ensure compliance with labor regulations and company policies, including automated time tracking, attendance monitoring, and reporting functionalities.

5. Employee Training and Support
    - Provide comprehensive training and support to employees to ensure successful adoption and utilization of the EMS, including user training sessions, documentation, and ongoing support channels.

6. Continuous Improvement
    - Establish mechanisms for gathering feedback and monitoring system performance to identify areas for improvement and ensure the ongoing effectiveness of the EMS in meeting the organization's needs and objectives.

Chapter 3:

Procedures

3.1 Flow of the Project

1. Planning Phase

- Identify Requirements
    - Gather requirements from stakeholders including managers and cleaning staff to understand the needs and challenges of the current workforce management system.

- Define Objectives
    - Clearly outline the aims and objectives of the employee management system project, focusing on enhancing efficiency, ensuring data security, developing a centralized database, and integrating reporting and analytics.

- Select Participants
    - Choose a project team consisting of IT professionals, managers, and cleaning staff to oversee the planning, development, and implementation phases.

- Create Project Plan
    - Develop a detailed project plan outlining tasks, timelines, milestones, and resource allocations for each phase of the project.

2. Development Phase

- Design Database Schema
    - Design a centralized employee database schema that includes tables for employee profiles, schedules, performance metrics, and training records.

- Develop User Interfaces
    - Design user-friendly interfaces for managers and cleaning staff to access and interact with the employee management system. This includes dashboards, forms, and reports tailored to each user role.

- Integrate Reporting and Analytics
    - Develop reporting templates, dashboards, and predictive analytics capabilities to provide managers with real-time insights into workforce performance and operational metrics.

3. Implementation Phase

- Deploy System

- Roll out the employee management system to the organization, ensuring proper installation, configuration, and testing of the software.

- Monitor Performance
  - Continuously monitor the performance and usage of the employee management system, collecting feedback from users and stakeholders to identify areas for improvement.

- Evaluate Results
  - Evaluate the impact of the employee management system on workforce efficiency, data security, and operational effectiveness.

4. Administration and Management

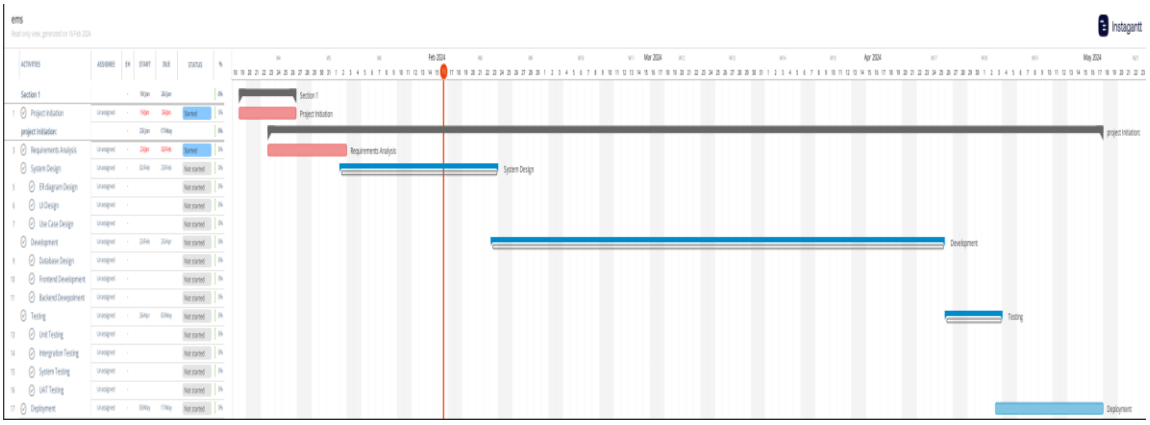
- Project Management
  - The project team, led by a project manager, oversees the planning, development, and implementation phases, ensuring that tasks are completed on time and within budget.

- IT Administration
  - IT professionals handle the technical aspects of system development and implementation, including database design, software development, and system deployment.

- Advisory Board
  - An advisory board consisting of senior management and key stakeholders provides guidance and oversight throughout the project, ensuring alignment with organizational goals and objectives.

3.2 Project Plan

Gantt chart



Chapter 4: Team Members and Roles

Index with Name	Main Function	Sub Function
TG/2020/684 -M.A.D.A.M.Arachchi	Employee Management	Both front-end and back-end development Add and Delete Employee Update and View Details Assigning Tasks to staff Monthly Generate Reports Web site UI
TG/2020/712 -R.M.S.M Rathnayake	Inventory Management	Both front-end and back-end development Web site UI Add and Delete Stock Update and View Stock Monthly Generate Report
TG/2020/676 -A.Asama	Leave and Attendance	Both front-end and back-end development Web site back-end Manage Staff Leave View Leave History Maintain Attendance Monthly Report Generate

TG/2020/709 - G.P.W.Sathma	Calculate Salary	Both front-end and back-end development Web site Back-end Add Salary Manage Salary Calculate Etf , Epf Monthly Report Generate Message Service

Chapter 5:

Hardware, Software Requirements

5.1 Hardware Requirements

- Server
  - A dedicated server or cloud-based hosting platform to host the Employee Management System software.
  - The server should have sufficient processing power, memory, and storage capacity to handle the anticipated workload and user traffic.

- Database Server
  - A database server to store and manage employee data, schedules, performance metrics, and other relevant information.
  - The database server should be capable of handling large volumes of data and providing fast and reliable access to users.

- Networking Equipment
  - Networking equipment such as routers, switches, and firewalls to facilitate communication between clients and the server hosting the Employee Management System.
  - A stable and secure network infrastructure is essential for reliable system access and performance.

- Workstation Computers
  - Workstation computers for supervisors in the company to access the Employee Management System.
  - These computers should meet minimum system requirements for running web browsers or dedicated client applications required to access the system.

5.2 Software Requirements

- DBMS MySQL
- Programming Languages PHP/HTML/CSS/JavaScript
- Software Framework Bootstrap
- Project management tool - ClickUp
- Development Tools
    - Git
    - IDE – visual studio code
- Security Requirements
    - The salary system should meet industry-standard security requirements, including encryption of sensitive data, secure authentication and authorization mechanisms, and data backup and recovery procedures.
- Integration Requirements
    - The salary system should be able to integrate with other systems used by the agency, such as human resource management systems (HRMS) or accounting software.
- User Interface
    - The salary system should have a user-friendly interface that is easy to use and navigate, with clear instructions and guidance for users.
- Performance Requirements
    - The salary system should be able to handle a large volume of employee data and calculations and should be able to generate pay slips and reports quickly and accurately.

Chapter 6:

Budget

Expense Category	Description	Estimated Cost (Rs.)
Hosting	Cloud hosting for the management system	8 000 .00
Domain	Purchase and registration of the domain	8 000 .00
Internet Connectivity	Monthly internet service for the organization	6 000 .00
Total Cost		22 000.00

Chapter 7:

Risk Assessment

1. Technical Challenges
    - Risk
        - Unforeseen technical complexities during system development.
    - Mitigation
        - Conduct a thorough feasibility study, engage experienced developers, and implement an agile development approach to address and adapt to emerging technical challenges.

2. User Adoption Resistance
    - Risk
        - Resistance from cleaning staff to adopt the new system.
    - Mitigation
        - Involve end-users in the development process, provide comprehensive training, and communicate the benefits of the system to gain user buy-in.

3. Scope Creep
    - Risk
        - Expanding project scope without proper control.
    - Mitigation
        - Clearly define project scope, establish a change control process, and involve stakeholders in decision-making to prevent unnecessary scope changes.

4. Budget Overruns
    - Risk
        - Exceed allocated budget due to unforeseen expenses.
    - Mitigation
        - Regularly monitor expenses, create a contingency budget, and prioritize project features to ensure critical functionalities are delivered within budget constraints.

Chapter 8:

Communication and Reporting

Communication and reporting throughout the software development phase are crucial for ensuring project success, managing stakeholder expectations, and delivering a high-quality product on time and within budget. Here's how communication and reporting can be structured at each stage of the software development lifecycle.

1. Planning Phase

- Communication Channels
    - Establish communication channels such as email, project management tools (e.g., click up), and collaboration platforms (e.g. Microsoft Teams) for regular updates, discussions, and document sharing.

- Reporting
    - Create a project plan outlining deliverables, milestones, and dependencies. Provide regular status reports to stakeholders, highlighting progress, risks, and any adjustments to the project plan.

2. Requirements Gathering and Analysis

- Stakeholder Interviews
    - Conduct interviews with stakeholders to gather requirements, clarify ambiguities, and ensure a shared understanding of project goals.

- Documentation
    - Document requirements, user stories, and acceptance criteria in a clear and concise manner. Use tools like Confluence or Google Docs for collaborative documentation.

- Regular Meetings
    - Schedule regular meetings with stakeholders to review and validate requirements. Provide status updates on requirement gathering progress and any identified challenges.

3. Design Phase

- Design Workshops
    - Collaborate with stakeholders to review wireframes, mockups, and prototypes. Gather feedback and iterate on designs to align with user needs and project goals.

- Design Reviews
    - Conduct design reviews with the project team and stakeholders to ensure designs meet functional and aesthetic requirements.

- Reporting

- Provide design progress reports, highlighting key design decisions, feedback received, and any design changes made.

4. Development Phase

- Daily Standup Meetings
  - Hold daily standup meetings with the development team to discuss progress, obstacles, and plans for the day.

- Sprint Planning
  - Conduct sprint planning meetings to prioritize tasks, assign work, and set sprint goals.

- Code Reviews
  - Implement a code review process to ensure code quality, adherence to coding standards, and knowledge sharing among team members.

Reporting
  - Provide regular progress updates to stakeholders, including sprint demos, burndown charts, and velocity reports.

5. Testing Phase

- Test Planning
  - Collaborate with QA engineers to create test plans, test cases, and testing environments.

Regression Testing
  - Conduct regression testing to ensure that new features or changes do not introduce regressions or break existing functionality.

- Reporting
  - Generate test reports summarizing test results, defect metrics, and overall test coverage.

6. Deployment and Maintenance Phase

- Deployment Planning
  - Plan and coordinate deployment activities, including release schedules, rollout strategies, and rollback procedures.

- Post-Deployment Review

- Conduct post-deployment reviews to gather feedback from stakeholders and identify areas for improvement.

- Ongoing Support
  - Provide ongoing support and maintenance for the software, addressing issues, releasing patches, and implementing feature enhancements.

- Reporting
  - Generate post-deployment reports summarizing deployment activities, feedback received, and any post-deployment issues encountered.

Chapter 9:

Testing and Quality Assurance

Testing and quality assurance (QA) processes are critical components of software development, ensuring that the final product meets the required standards of functionality, reliability, and performance. Here's an overview of the testing and QA processes that will be implemented.

Requirement Analysis

- Before any testing begins, it's essential to have a clear understanding of the software requirements.
- This involves thorough communication with stakeholders to gather their needs and expectations.

Test Planning

- A comprehensive test plan will be developed outlining the scope, objectives, resources, schedule, and approach for testing.
- This plan will serve as a roadmap throughout the testing process.

Unit Testing

- Developers will conduct unit testing to verify the functionality of individual units or components of the software.
- This ensures that each unit behaves as expected and meets the specified requirements.

Integration Testing

- Once individual units are tested, they are integrated to test their interactions and interfaces.
- Integration testing ensures that components work together seamlessly as a whole system.

System Testing

- The entire software system will undergo rigorous testing to validate its compliance with functional requirements.
- This includes testing different scenarios and user interactions to identify and resolve any issues.

Performance Testing

- Performance testing will be conducted to assess the responsiveness, stability, and scalability of the software under various load conditions.
- This ensures that the software can handle expected levels of usage without performance degradation.

Security Testing

- Security testing will be performed to identify and address vulnerabilities in the software, protecting it against potential threats such as unauthorized access, data breaches, and malware attacks.

User Acceptance Testing (UAT)

- Before deployment, the software will be subjected to UAT by end-users or stakeholders.
- This ensures that the software meets their expectations and is fit for purpose.

Regression Testing

- Whenever changes are made to the software, regression testing will be conducted to ensure that existing functionality is not adversely affected.
- This helps maintain the overall integrity and stability of the software.

Defect Tracking and Management

- Throughout the testing process, any defects or issues identified will be logged, prioritized, and tracked to resolution.
- This ensures that all problems are addressed effectively.

Continuous Improvement

- Testing and QA processes will be continuously evaluated and improved upon based on feedback and lessons learned from previous projects.
- This ensures that the quality of software products is continually enhanced over time.

Chapter 10: References

(No date) *Employee management system*. Available at https//lnu.diva-portal.org/smash/get/diva2204828/FULLTEXT01.pdf (Accessed 16 February 2024).

Comments on proposal presentation

- Scope is enough.
- Functions should be improved.
- Communication should be improved within the group members.
- Communicate with client properly.
- Observe the cleaning service in faculty premises.