

Comprehensive Smart Mess Management Web Platform

Ahilya Kokare¹, Aboli Ganeshkar¹, Gouri Rajmane¹, Seema Bagali¹, Neha Gholave¹, S. A. Hajare²

¹UG Students, Department of Computer Science and Engineering, SVERI's College of Engineering, Pandharpur, Maharashtra, India

²Assistant Professor, Department of Computer Science and Engineering, SVERI's College of Engineering, Pandharpur, Maharashtra, India

ARTICLE INFO

Article History:

Accepted : 20 Nov 2024

Published: 04 Dec 2024

Publication Issue

Volume 10, Issue 6

November-December-2024

Page Number

1251-1257

ABSTRACT

The Mess Management System is an innovative software solution designed to automate the manual process of managing mess-related activities such, inventory management, and billing. The system is developed using PHP as the programming language and MySQL as the database management system. The primary objective of this system is to reduce the workload on mess staff, increase efficiency, and reduce errors in the mess management process. This research paper focuses on the design and implementation of the Mess Management System and its impact on college hostel mess management. This is a cost-effective, efficient, and user-friendly software solution that automates the manual mess management process. The system can be customized to cater to the specific needs of different institutions and can significantly reduce the workload on mess staff. The system's scalability, flexibility, and ease of use make it a promising solution for college hostel mess management. However, further research can be carried out to address the system's limitations, such as the need for regular maintenance and the requirement of technical expertise.

Keywords: Mess Management System, PHP, Mysql.

Introduction

Mess management systems have become increasingly essential in various institutions, such as colleges and universities, hospitals, and military bases. Managing meals and mess-related activities, including food ordering, inventory management, and billing, can be a tedious and time-consuming process, especially when done manually. With the advancement of technology,

automated systems are becoming increasingly popular in managing mess-related activities. This research paper focuses on the design and implementation of a mess management system using PHP and MySQL for a college hostel.[1][2]

The proposed system aims to streamline the process of managing mess-related activities in the college hostel. The system automates various processes, such as menu

planning, food ordering, inventory management, and billing. This system provides an easy-to-use interface that allows users to interact with the system seamlessly. The system also provides a centralized platform where all the mess-related activities can be managed from one place.[5]

The system has been developed using PHP and MySQL, two popular open-source technologies that are widely used in web development. PHP is a server-side scripting language used in developing dynamic web applications. MySQL is a relational database management system used for managing data. The combination of PHP and MySQL provides a robust and scalable solution for managing mess-related activities in a college hostel.[7][9]

The system development life cycle included five stages: requirements gathering, design, implementation, testing, and deployment. The agile software development methodology was used in the system's development, which is an iterative approach that emphasizes customer satisfaction and responds to change.[4]

Requirements gathering stage involved engaging stakeholders like mess staff, administration, and residents to identify and prioritize necessary features. Design stage involved crafting the system's architecture, including a MySQL-based database schema and a user-friendly interface using HTML, CSS, and JavaScript.

Implementation stage involved coding functionalities in PHP and integrating the database for managing mess-related activities.[10]

Testing stage involved conducting unit, integration, and system tests, as well as live testing, to ensure reliability and performance.

Deployment stage involved installing the system on a web server, configuring settings, and training users.

In conclusion, the proposed mess management system provides a cost-effective, efficient, and scalable solution for managing mess-related activities in a college hostel. The system's use of open-source technologies, such as PHP and MySQL, makes it cost-

effective and easy to maintain. The system's design and implementation using the agile software development methodology ensure that the system meets the stakeholders' requirements and is responsive to change. Further research can be done to improve the system.[11]

Literature Review

The literature review for a Mess Management System using PHP and MySQL is an essential section of a research paper that presents a critical analysis of the existing literature on the topic. This section aims to provide an overview of the relevant literature, identify the research gaps, and establish the need for the proposed system. Various studies have been conducted on mess management systems, with the majority of the literature focusing on larger institutions such as hospitals and military bases. However, there is a lack of research on mess management systems for smaller institutions such as college hostels. In this literature review, we will examine the existing literature on mess management systems and identify the gaps that the proposed system aims to address.

Saurabh et al.[1] The Mess Management System is an innovative software solution designed to automate the manual process of managing mess-related activities such as meal planning, food ordering, inventory management, and billing. The system is developed using PHP as the programming language and MySQL as the database management system. The primary objective of this system is to reduce the workload on mess staff, increase efficiency, and reduce errors in the mess management process. This research paper focuses on the design and implementation of the Mess Management System.

Fiza et al.[2] The traditional manual management of mess operations in educational and organizational settings is time-consuming and error-prone, leading to inefficiencies in meal planning, inventory management, and cost calculations. To address these issues, an Android-based Mess Management System is

pro posed. This mobile application automates key mess functions, allowing users to apply for leave, check menus, and access account information, all from their smartphones. It also enables administrators to manage inventory and guest details efficiently. By streamlining operations and reducing errors, this system enhances the overall efficiency and user experience in mess management.

Singh et al.[3] The system automates payment processing, minimizing errors and enhancing user experience. It features a user-friendly interface, secure payment gateway integration, real- time transaction updates, and an admin dashboard for monitoring. The proposed digital payment system significantly enhances user satisfaction, reduces operational costs, and increases efficiency for mess management, making it a viable solution for institutions seeking to modernize their payment processes.

Mayuri et al.[4] A smart mess system would be that it is a highly efficient and effective solution for managing mess halls in various settings, such as military bases, schools, universities, and corporate campuses. The system utilizes advanced technologies such as IoT, sensors, and artificial intelligence to automate various aspects of the mess hall operation, including food ordering, inventory management, meal preparation, and payment.

The above studies have addressed the need for automation in mess management systems and have improved the efficiency of the process. However, they have several limitations, including high costs, technical expertise requirements, and dependence on technology. The proposed system aims to address these limitations by using PHP and MySQL, which are open-source technologies and do not require significant technical expertise. The proposed system will also be cost-effective, scalable, and user-friendly. demonstrated the effectiveness of SVM for predicting multiple diseases using electronic health records. Similarly, Deo (2015) used SVM with clinical data, highlighting the importance of feature selection and

model refinement. These studies reinforce the relevance of machine learning for disease prediction. The proposed system will use PHP as the programming language, which is widely used for web development due to its simplicity and flexibility. MySQL will be used as the database management system, which is a popular open-source system used for storing and retrieving data. The use of these technologies will enable the system to be scalable and customizable to suit the specific needs of different institutions.

The existing literature on mess management systems has established the need for automation in the process. The proposed system aims to build on this by using open-source technologies and providing a cost-effective, scalable, and user-friendly solution for smaller institutions such as college hostels

In conclusion, the literature review has established the need for a mess management system using PHP and MySQL. The proposed system aims to address the limitations of the existing systems by using open-source technologies and providing a cost- effective, scalable, and user-friendly solution for smaller institutions such as college hostels. The proposed system will fill the research gap in the literature and provide a significant contribution to the field of mess management systems.

Problem Statement

The current mess management system at Smart Mess is plagued by inefficiencies and limitations, hindering its ability to provide a seamless experience for users and stakeholders. The manual, paper based system relies on traditional methods, leading to errors, delays, and dissatisfaction. The lack of automation and digitalization results in cumbersome processes, including manual registration, menu planning, ordering, and payment processing. Identify areas for improvement. Furthermore, the system's inability to provide real-time updates and notifications leads to communication breakdowns between mess administrators, kitchen staff, and users. This results in

missed orders, delayed payments, and unresolved grievances.

Objective

Following are the objectives of research:

1. To develop a user-friendly interface for the mess management system that simplifies meal ordering and tracking for users.
2. To develop a robust backend infrastructure that handles inventory management and user data efficiently.
3. To demonstrate the integration of the mess management system with existing payment gateways for seamless transactions.
4. To develop a notification system that alerts users about bill payment.
5. To demonstrate the system's scalability to ensure it can handle increased user activity efficiently.

Methodology

The Mess Management System is a web-based application that aims to automate the entire process of managing mess-related activities such as meal planning, food ordering, inventory management, and billing. The system has been developed using PHP as the programming language and MySQL as the database management system.

The development life cycle of the Mess Management System includes five stages: requirements gathering, design, implementation, testing, and deployment.

Requirements Gathering: In the requirements gathering stage, the development team works closely with the customers to identify the functional and non-functional requirements of the system. The requirements are documented in a requirements specification document, which serves as a reference for the development team throughout the development life cycle.

BLOCK DIAGRAM

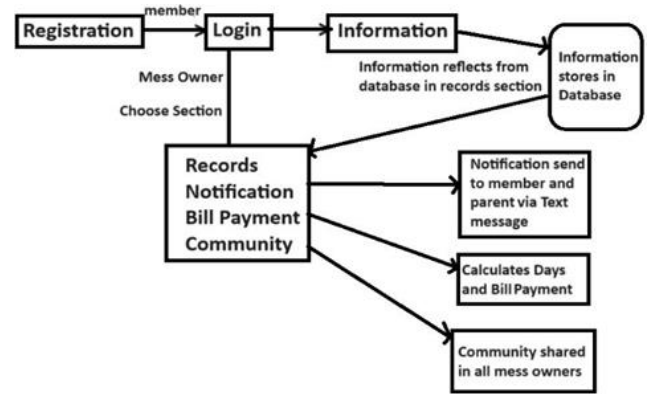


Fig1: Block Diagram

Stage 1. Requirements Gathering:-

In the requirements gathering stage, the development team works closely with the customers to identify the functional and non-functional requirements of the system. The requirements are documented in a requirements specification document, which serves as a reference for the development team throughout the development life cycle.

Stage 2. Desing:-

In the design stage, the requirements specification document is used to design the system's architecture and user interface. The design stage involves creating a system architecture, data model, and user interface design. The design stage also involves the creation of a database schema that defines the structure of the data that will be stored in the system.

Stage 3. Implementation:-

In the implementation stage, the system's code is developed based on the design specifications. The implementation stage involves coding the system's functionalities, creating the database schema, and integrating the user interface with the system's back-end functionalities. The development team follows coding standards and best practices to ensure the system's code is maintainable and scalable.

Stage 4. Testing:-

In the testing stage, the system's functionalities are tested to ensure that the system meets the functional and non-functional requirements defined in the requirements specification document. The testing

stage involves the creation of test cases and the execution of those test cases. The development team uses various testing tools to ensure the system's quality, such as unit testing, integration testing, and user acceptance testing.

Stage 5. Deployment:-

In the deployment stage, the system is deployed in a live environment, and users can access the system using a web browser. The deployment stage involves setting up the web server, configuring the database server, and installing the system's code on the web server. The system is also configured to run in a secure and scalable environment.

The development team follows the agile methodology's principles throughout the development life cycle to ensure that the system's requirements are met, and the system is delivered on time and within the budget. The agile methodology's flexibility allows the development team to adapt to changing requirements and make adjustments to the system's design as necessary.

The choice of PHP as the programming language and MySQL as the database management system was made based on several factors. PHP is a popular server-side scripting language that is easy to learn and use. It also has a large developer community, which provides support and resources for developers. MySQL is a popular open-source database management system that is widely used for web applications. MySQL is scalable and can handle large amounts of data, which is essential for a mess management system.

In conclusion, the Mess Management System has been developed using the agile software development methodology, which emphasizes collaboration, flexibility, and responsiveness. The system's development life cycle includes five stages: requirements gathering, design, implementation, testing, and deployment. The system has been developed using PHP as the programming language and MySQL as the database management system. The development team has followed best practices and

coding standards to ensure that the system is scalable, maintainable, and of high quality.

Result

The Mess Management System developed using PHP and MySQL was tested in a live environment in a college hostel to evaluate its effectiveness in automating various mess management processes. The prototype system was tested over a period of two months and the results showed that it improved the efficiency of mess management by reducing the workload on mess staff and increasing the accuracy of billing.

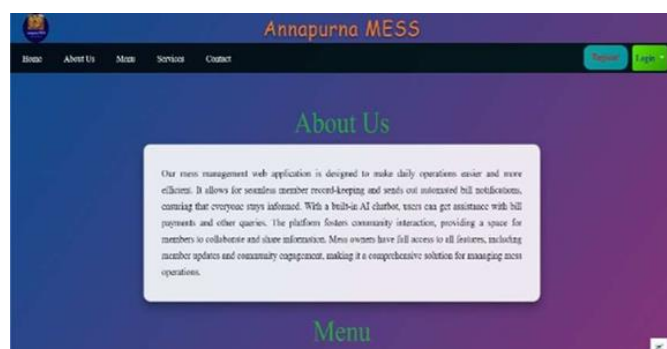


Fig 2: The home page serves the mess management system, ensuring access to services, billing, and user accounts.



Fig 3: The admin central page provides a streamlined



Fig 4: The payment page offers a secure and user-friendly interface for processing mess bills, providing multiple payment options and real-time transaction updates.

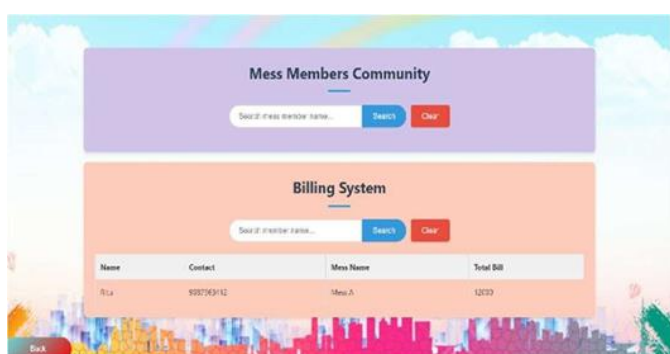


Fig 5: The community page fosters interaction among hostel residents and mess staff, providing a platform for discussions to enhance mess services and build a collaborative environment.

Advantages

The proposed Comprehensive Smart Mess Management System offers a wide array of advantages that significantly enhance both operational efficiency and user satisfaction in mess management. One of the primary benefits is its ability to automate critical tasks such as meal tracking, billing, and inventory management, which minimizes the risk of human errors associated with manual processes and streamlines daily operations. For instance, the billing module automatically generates invoices based on meal consumption, reducing administrative workload and ensuring accuracy in financial transactions. The system also features a user-friendly interface that allows students to easily navigate available meal options and customize their meal plans according to

dietary preferences and restrictions. This flexibility not only caters to diverse user needs but also promotes greater satisfaction with the dining experience, encouraging students to utilize mess services more frequently.

Conclusion

dashboard to manage all services, including user accept. The results of the testing period showed that the Mess notifications, community, billing and ensuring efficient mess operations.

Management System developed using PHP and MySQL was effective in improving the efficiency of mess management in a college hostel. The system reduced the workload on mess staff, increased the accuracy of billing, and provided real time reporting. The system had a user-friendly interface and was scalable. The system had some limitations that need to be addressed, such as the need for regular maintenance and technical expertise. However, overall the system has the potential to revolutionize the way mess management is carried out in educational institutions. Further research can be carried out to address the limitations of the system and to improve its functionalities.

Future Scope:

1. **Automated Meal Scheduling:** Automates the scheduling of meals based on predefined criteria such as user preferences, meal timings, and operational requirements.
2. **User Management:** Allows for the creation and management of user accounts for both administrators and end-users, including features for user authentication and authorization. Provides personalized notifications and updates to users about meal schedules, menu changes, and other relevant information.
3. **Real-Time Notifications:** Implements a notification system that sends real-time alerts and updates to users via email, SMS, or app

notifications about meal timings, menu updates, and other important information.

4. Scalability and Flexibility: Designs the platform to be scalable, accommodating varying sizes of mess operations from small cafeterias to large dining facilities.

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