iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 14 **Issue:** III **Month of publication:** March 2026

DOI: https://doi.org/10.22214/ijraset.2026.78200

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 14 Issue III Mar 2026- Available at www.ijraset.com

Hostel Management System

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Abstract: ***Hostel management in many educational institutions is still handled using manual methods such as registers and spreadsheets, which often leads to inefficiencies, data redundancy, and difficulty in managing records. This paper proposes a Hostel Management System designed to automate and streamline hostel operations including student registration, room allocation, fee management, complaint handling, and record maintenance. The proposed system aims to improve efficiency, accuracy, and transparency in hostel administration. By implementing a web-based system, hostel authorities can easily manage student information, room availability, and other hostel services in a centralized database. The system also enables faster communication between hostel administrators and students. The implementation of the Hostel Management System reduces paperwork, minimizes human errors, and ensures better utilization of hostel resources. The proposed solution demonstrates how digital transformation can simplify hostel management and enhance the overall administrative experience.***

Keywords: Hostel Management System, Web Application, Student Management, Room Allocation, Database Management, Automation.

I. INTRODUCTION

Hostel facilities play a crucial role in educational institutions, especially for students coming from distant places. Managing hostel operations manually can become complex when the number of students increases. Traditional systems rely on registers or spreadsheets to maintain records of students, rooms, and fees, which often leads to data redundancy, errors, and difficulty in retrieving information. With the advancement of information technology, digital solutions are widely used to manage administrative tasks efficiently. A Hostel Management System is designed to automate the process of hostel management and provide an organized system for maintaining hostel data. The proposed system allows administrators to manage student records, allocate rooms, track hostel fees, and handle complaints through a centralized database. Students can also access their room details and submit complaints through the system. This digital approach improves the efficiency, accuracy, and transparency of hostel operations.

II. PROBLEM STATEMENT

In many educational institutions, hostel management is still performed manually. This manual system creates several problems such as difficulty in maintaining large amounts of data, time-consuming administrative tasks, and lack of proper record management.
The main problems in existing systems include:

1) Manual record maintenance
2) Difficulty in managing room allocation
3) Lack of centralized student data
4) Time-consuming hostel administration
5) Higher chances of human errors
6) Inefficient complaint management

Therefore, there is a need to develop an automated Hostel Management System that can efficiently handle hostel operations and improve overall management.

III.OBJECTIVES

The main objectives of the proposed system are:

1) To develop an automated hostel management system
2) To maintain accurate records of students and rooms
3) To simplify room allocation processes
4) To manage hostel fee records efficiently
5) To provide a complaint management system for students
6) To reduce manual paperwork and administrative workload
7) To improve transparency and efficiency in hostel management

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IV.LITERATURE SURVEY

Many researchers have proposed different digital solutions to improve hostel management and automate administrative tasks in educational institutions.

Paper [1] presented a system called Design and Implementation of Hostel Management System Using Java and MySQL. The system focuses on automating hostel activities such as student registration, room allocation, and fee management using a web-based platform. The study shows that computerized hostel systems reduce paperwork and improve the efficiency of administrative tasks.

Paper [2] proposed a Web-Based Hostel Management System to streamline hostel operations and improve transparency. The system allows administrators to manage student data, room allocation, and maintenance records through an online platform. The study highlighted that digital systems provide real-time information access and better decision-making for hostel authorities.

Paper [3] discussed an Online Hostel Management System designed to handle various hostel operations such as room allocation, student information, and complaint registration. The research emphasized the need for automation due to the increasing number of educational institutions and hostel residents

Paper [4] introduced a comprehensive Hostel Management System aimed at improving administrative efficiency and reducing manual workload. The system integrates multiple functions including student management, hostel records, and administrative reporting into a centralized digital platform.

Paper [5] proposed a NIT Hostel Management System where three main users—Admin, Student, and Warden—interact with the system. The system allows students to view hostel information and submit complaints while administrators manage student records and room allocation through a centralized database.

Paper [6] developed a hostel management web application that automates hostel processes such as room allocation, waiting list management, complaint registration, and mess billing. The research concluded that automation significantly reduces human effort and improves data management in hostels.

Paper [7] presented an E-Based Hostel Management System designed to replace manual record systems used in hostels. The system stores student records, room allocation details, and other hostel information in a digital database, enabling administrators to access data quickly and efficiently.

The above studies highlight the importance of implementing digital systems in hostel management. Most of the proposed solutions focus on automating administrative tasks, improving data storage, and providing better services for hostel residents.

V. PROPOSED SYSTEM

The proposed Hostel Management System is a web-based application that helps administrators manage hostel operations digitally. The system includes two main modules:

A. Admin Module

1) Add and manage student details
2) Allocate hostel rooms
3) Manage hostel fee records
4) Monitor complaints and requests
5) Maintain hostel database

B. Student Module

1) Student registration and login
2) View room allocation details
3) Submit complaints
4) View hostel notices and announcements

C. Guest Module

The guest module is designed for visitors or users who want to access basic hostel information without logging into the system.

1) View hostel information and facilities
2) View available hostel rooms
3) View hostel rules and regulations
4) View contact information of hostel administration

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The system stores all information in a centralized database, making it easy to manage and retrieve hostel data.

VI. SYSTEM DESIGN

A. *System Architecture*

The system follows a three-tier architecture consisting of:

1) Presentation Layer (User Interface): The presentation layer is the front-end part of the system that interacts directly with the users. It provides a graphical interface through which users can access the system features. In the proposed system, the user interface is developed using HTML, CSS, and Bootstrap. This layer allows students and administrators to interact with the system through web pages such as registration forms, login pages, and dashboard interfaces. Students can perform operations such as registration, viewing room details, and submitting complaints. Administrators can access options for managing student records, allocating rooms, and monitoring hostel activities.

2) Application Layer (Business Logic Layer): The application layer is responsible for processing user requests and performing system operations. It acts as a bridge between the user interface and the database. This layer is implemented using JavaScript, which handles system logic such as validating user inputs, processing room allocation, managing student information, and handling complaints. Whenever a user performs an action in the interface, the application layer processes the request and sends the required data to the database layer.

3) Database Layer: The database layer is responsible for storing and managing all the system data. It maintains records such as student details, room information, hostel fees, and complaint records. The database ensures secure storage and quick retrieval of information. It also helps administrators access accurate hostel data whenever required. All data generated by the system is stored in the database, ensuring data consistency and efficient management of hostel operations.

B. *Working of System Architecture*

When a student or administrator interacts with the system through the web interface, the request is first received by the presentation layer. The request is then processed by the application layer, which performs the required operations and communicates with the database layer to retrieve or store information. Finally, the processed information is sent back to the presentation layer, where it is displayed to the user. This structured architecture ensures smooth communication between different components of the system.

VII. RESULT AND DISCUSSION

The proposed Hostel Management System was successfully designed and implemented as a web-based application to automate hostel administration activities. The system provides different functionalities for administrators, students, and guests, making hostel management more efficient and organized. The developed system allows administrators to manage student records, allocate rooms, maintain hostel fee details, and monitor complaints through a centralized platform. Students can register in the system, view their room allocation details, and submit complaints or requests.

The guest module allows visitors to access general hostel information and facilities. The implementation of the system reduces the need for manual record keeping and improves the accuracy of hostel data management. All the information related to students, rooms, and fees is stored in a centralized database which ensures easy retrieval and better data security. The system was tested with different operations such as student registration, room allocation, complaint submission, and database management. The results show that the system performs efficiently and provides quick access to hostel information. The developed system also improves communication between students and hostel administrators. Students can easily submit complaints through the system, and administrators can view and resolve them efficiently. The proposed system demonstrates that digital hostel management significantly improves operational efficiency and reduces administrative workload. The web-based interface makes the system easy to use and accessible from different devices.

Table: System Performance Comparison

Parameter	Existing Manual System	Proposed Hostel Management System
Record Management	Manual registers	Digital database
Room Allocation	Manual process	Automated allocation
Complaint Handling	Written complaints	Online complaint system
Data Retrieval	Time consuming	Instant access
Data Security	Low	High

The comparison clearly shows that the proposed system provides better efficiency, accuracy, and reliability compared to the traditional hostel management process.

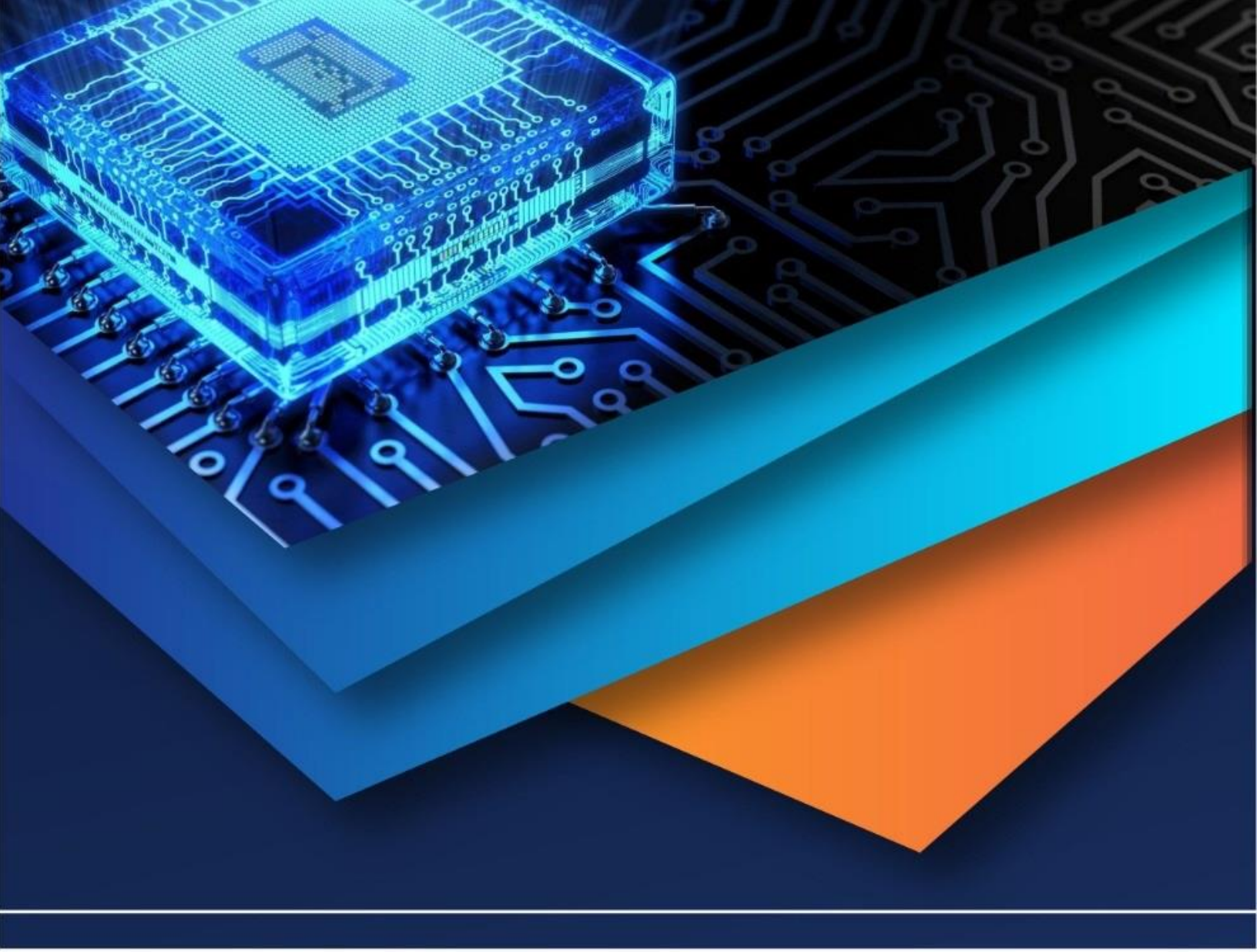
VIII. CONCLUSION

The Hostel Management System provides an effective solution for managing hostel operations digitally. The system reduces manual workload, improves data accuracy, and provides better management of student records and hostel facilities. By implementing this system, educational institutions can improve the efficiency of hostel administration and ensure better service for students.

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