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HOSTELBRIDGE : A SMART HOSTEL MANAGEMENT AND COMMUNICATION SYSTEM

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Abstract: Hostel Bridge is a modern hostel management and communication system designed to improve the efficiency of hostel operations and enhance interaction between students and administrators. Traditional hostel systems rely heavily on manual processes, which often lead to delays, errors, and communication gaps. This project is developed as an Android-based application using XML, Kotlin, and Java technologies. XML is used for designing structured and user-friendly interfaces, while Kotlin and Java are used to implement the application logic and backend functionalities. The system allows administrators to efficiently manage student records, room allocation, attendance, fee details, and maintenance activities. The application also includes a communication module that enables real-time notifications, announcements, and complaint management. Students can easily submit requests or issues, and administrators can track and resolve them efficiently. Hostel Bridge ensures secure data handling and provides a simple and user-friendly experience. It reduces paperwork, minimizes administrative workload, and improves transparency. Overall, the system enhances the effectiveness and responsiveness of hostel management.

1. INTRODUCTION

Welcome to our innovative hostel management project, designed to revolutionize the hostel experience. This comprehensive application ensures seamless communication among users, wardens, administrators, and NGOs. Users undergo a streamlined verification process, gaining access to features such as menu viewing, attendance requests, and complaint submissions. Wardens can efficiently manage and update complaint statuses, provide food service feedback, and oversee donated food logistics for NGOs. Administrators have a centralized dashboard that provides a complete overview for effective management and decision-making. The platform also fosters collaboration with NGOs for sustainable food donation practices, helping reduce food wastage and support those in need. Our project aims to create a unified, user-friendly system that optimizes hostel operations, enhances community support, and ensures a well-managed and enjoyable hostel living experience.

2. Literature Survey

The literature survey focuses on studying existing hostel management systems and the technologies used in them. Many traditional hostel systems still rely on manual processes, which lead to issues such as delays, poor communication, and difficulty in maintaining records. To overcome these challenges, several researchers have developed web-based and cloud-based systems that automate tasks such as room allocation, record management, and student monitoring.

However, most existing systems do not provide all features on a single platform. They often lack proper complaint management, real-time updates, food feedback systems, and donation features. Due to these limitations, there is a need for a more advanced solution. The proposed system aims to address these issues by developing a mobile application that integrates all functionalities such as complaints, requests, menu updates, and NGO support in one place. This results in a more efficient, user-friendly, and comprehensive hostel management system.

Harina P.Kavya K K. Sharmikh SreeR Meera S(2022). This study highlights that many educational institutions still use outdated methods for managing hostel facilities, which negatively impacts performance. The authors propose a web-based hostel management system to automate

essential tasks such as record maintenance and accommodation management. The system focuses on a graphical user interface (GUI), reliability, efficiency, and security through access control mechanisms, thereby overcoming the limitations of traditional methods.

Iskandar Ishak; Nur Shahirah Abdul Rahman; Hazlina Hamdan; Fatimah Sidi (2017) The Merit2U system is a web-based application designed to manage student merit points for hostel allocation. It automatically calculates and manages merit points electronically, improving accuracy and efficiency compared to manual systems.

Shashank Bhardwaj et al. (2022) This research presents a smart hostel management system that uses Artificial Intelligence (AI) and the Internet of Things (IoT). The study emphasizes the importance of digital transformation in modern education systems and proposes an intelligent model to address common hostel-related problems using advanced technologies.

Sneha Agrawal; Sugandh Rastogi; Shivani Trivedi (2023)This study introduces a cloud-based hostel facility automation system that digitizes hostel administration processes. It enables online room allocation, monitoring of room cleanliness, and improved transparency. The system uses cloud computing and MongoDB for efficient data management and reduces manual paperwork.

3. Proposed System

The proposed Hostel Management System is a centralized mobile-based application designed to enhance the efficiency and effectiveness of hostel operations. The system integrates multiple stakeholders, including students, wardens, administrators, cooks, and NGOs, into a unified platform that facilitates seamless communication and real-time data management.

The application enables users to access various services such as complaint registration, request submission, food menu updates, and notifications through an intuitive and user-friendly interface. The system incorporates an automated complaint management mechanism that allows users to track the status of their complaints in real time, thereby reducing manual effort and improving response time.

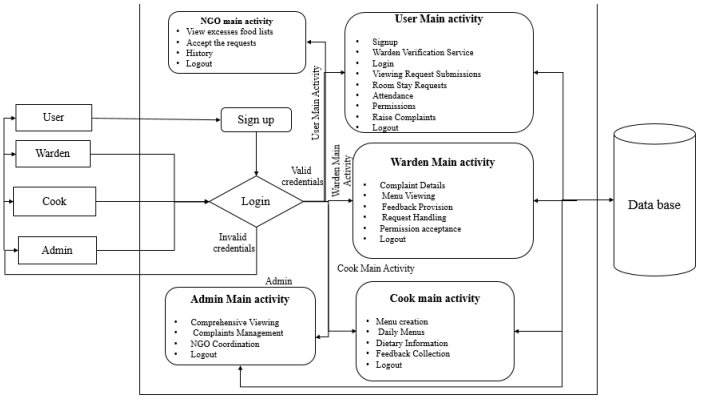


Fig 1: Proposed System

- Centralized system
- Complaint management (real-time)
- Food count tracking
- First aid support
- Nearby hospitals (static list)
- Multi-user modules4.

4. Methodology

The methodology of the system is organized into the following steps:

1. Requirement Analysis: Identify problems in the existing system and collect user requirements.

2. System Design: Design system architecture, UML diagrams, and database structure.

3. Module Development: Divide the system into modules like User, Admin, First Aid, and Hospitals.

4. Implementation: Develop the application using Android Studio and integrate all modules.

5. Testing: Test the system using different methods to ensure it is error-free.

6. Deployment: Generate APK and install the application for real-time use.

7. Maintenance: Update the system by fixing bugs and adding new features.

5. Proposed System Results

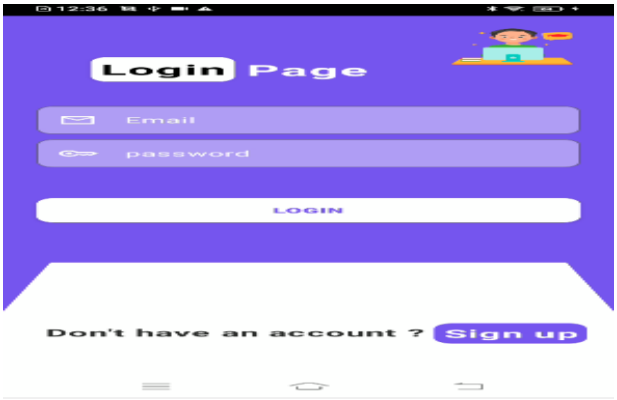
The implementation of the proposed Hostel Management System demonstrates significant improvements in efficiency, communication, and overall system performance. The application successfully integrates multiple modules, including student, warden, admin, cook, NGO, First Aid, and Nearby Hospitals, into a unified platform.

The complaint management system enables users to submit and track complaints in real time, resulting in faster issue resolution compared to the existing manual process. The Food Count Management feature accurately calculates the number of students opting for each meal, thereby reducing food wastage and improving resource utilization.

The First Aid module provides immediate access to emergency contacts, while the Nearby Hospitals feature ensures that users can quickly access hospital details even without internet connectivity. This enhances the safety and emergency response capability of the system.

Furthermore, the system offers a user-friendly interface, reliable data storage using MySQL/Room database, and smooth interaction between modules. Testing results confirm that the application performs efficiently under different scenarios with minimal errors.

Overall, the proposed system achieves its objectives by providing a fast, reliable, and scalable solution for hostel management, improving user satisfaction and operational effectiveness.



The response time of the system was fast, and balancing actions were initiated without noticeable delay.

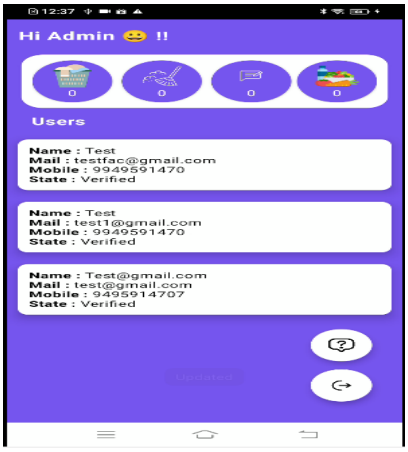


Fig 3 :SIGNUP PAGE

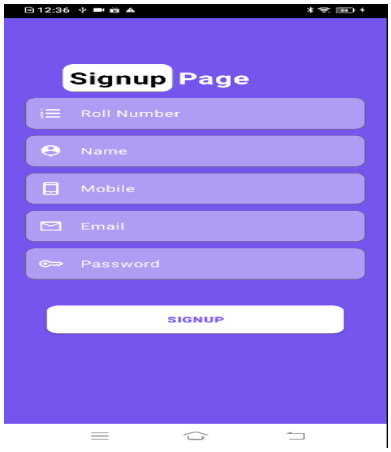


Fig 4: ADMIN PAGE

6. CONCLUSION

In conclusion, this hostel management application presents a cohesive system ensuring seamless communication and efficiency. Users enjoy streamlined access to essential services, while wardens and admins benefit from enhanced oversight and feedback mechanisms. The integration of NGOs adds a compassionate dimension to the system, allowing for the donation of leftover food. Overall, the application optimizes hostel operations for a more satisfying and well-managed living experience.

REFERENCES

[1]. Harina P; Kavya K K; Sharmikha Sree R; Meera S; Hostel Management; 09-10 November 2022.

[2]. Iskandar Ishak; Nur Shahirah Abdul Rahman; Hazlina Hamdan; Fatimah Sidi; Merit2U: An IoT-based merit point management system for university students' hostel application; 14-15 November 2017.

[3]. Shashank Bhardwaj; Venkadeshwaran K; Meraj Farheen Ansari; Bibhu Prasad Dash; Pawankumar Sharma; Devesh Pratap Singh; Hybrid Technology Based Smart Hostel Management System Using Artificial Intelligence and Internet of Things;26-27 December 2022.

[4]. Sneha Agrawal; Sugandh Rastogi; Shivani Trivedi; Cloud Based Hostel Facility Automation System; 20-21 April 2023.

[5]. Shashank Bhardwaj; Venkadeshwaran K; Meraj Farheen Ansari; Bibhu Dash; Hybrid Technology Based Smart Hostel Management System Using Artificial Intelligence and Internet of Things; December 2022.

[6] A. Khamis, D. Mohammed, A. Yahya, and J. Pandey, "A Proposed Model Based on Modern Requirements to Optimize Hostel Resources in Oman," 2020 8th International Conference on Reliability, Infocom Technologies, and Optimization (Trends and Future Directions), pp. 688-693, DOI: 10.1109/ICRITO48877.2020.9197798.

[7] X. Chen, Q. Liu, K. Huang, and T. Liu, "Modeling the relationship between perceived value, customer satisfaction, and customer loyalty in Youth Hostels: an empirical study," in 2019 16th International Conference on Service Systems and Service Management (ICSSSM), pp. 1-5, DOI: 10.1109/ICSSSM.2019.8887714.

[8] Kola Ayanlowo, Oshoewu, Segun Olatinwo, Olusegun Omitola, and others. "Development of an Automated Hostel Facility Management System," Damilola D. Babalola, Journal of Science and Engineering Vol. 5 (1), "https://www.academia.edu/33253031/ORICPublications Development of an Automated Hostel Facility Management System" (https://www.academia.edu/33253031/ORICPublications Development of an Automated Hostel F

[9] Deepak Kumar, Deepika Priyadarshani Khatua, Bikash Choudhury, Ajit An International Journal of Engineering & Technology, Vol. 4, No. 3 (March 2017), eISSN: 2394-627X, https://www.aijet.in/v4/1703005.pdf, Kumar Patro.

[10] Dr. Tarun Kumar Singhal, Saurabh, IraVashishtha, Purvi Chugh, and others "International Journal for Research in Applied Science and Engineering Technology (IJRASET) ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor:6.887 Volume 5 Issue IX, September 2017"