Woman Safety and Check-in/Check-out System for Girl's Hostel

Mr. Anup.D.Sonawane

Ms. Jamdhade Pratiksha , Ms. Kushare Komal Ms. Dalvi

Bhavana , Ms. Jamdhade Kaveri

Mr. Anup D. Sonawane, HOD, Computer Engineering, Mahavir Polytechnic, Nashik Ms. Jamdhade Pratiksha,Computer Department & Mahavir Polytechnic,Nashik Ms. Kushare Komal, Computer Department & Mahavir Polytechnic,Nashik

Ms. Dalvi Bhavana, Computer Department & Mahavir Polytechnic,Nashik

Ms. Jamdhade Kaveri, Computer Department &Mahavir Polytechnic,Nashik

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Abstract – The Woman Safety and Check-in/Check-out System for Girl's Hostel Application is a comprehensive Android solution developed in Flutter, designed to enhance the security and management of girls' hostels. The app leverages modern technologies like QR code scanning, access control, and real-time notifications to streamline the check-in and checkout process, ensuring the safety of hostel residents.

***Key Words*:** Women Safety, Hostel Security, QR Code Check-in/Check-out, Real-time Notifications, Access Control System , Android App for Hostel Management

1. INTRODUCTION

Safety is a primary concern for girls living in hostels, as parents and hostel authorities need a reliable system to monitor their movements and ensure their well-being. The Woman Safety and Check-in/Check-out System for Girl's Hostel Application is designed to address these concerns by integrating modern security measures into a user-friendly mobile application. This system provides a digital solution for hostel management while ensuring the security of residents through QR code-based check-ins and check-outs, real-time notifications, and access control.

In traditional hostel management, manual registers or paper-based logs are used to track student movements. However, these methods are time-consuming, error-prone, and unreliable. Additionally, they do not provide real-time updates to parents or guardians, leaving them unaware of their child's whereabouts. This project aims to replace the manual system with an automated solution that enhances security, reduces human error, and improves operational efficiency.

The application is built using Flutter, a popular framework for developing cross-platform mobile applications. It allows for a seamless user experience on both Android and iOS devices. The system includes various features such as student registration, room allocation, and automated fee management. Most importantly, it integrates QR code technology to make the check-in and check-out process simple, fast, and secure.

The QR code scanning mechanism ensures that each resident's movement is logged into the system instantly. When a student enters or exits the hostel premises, they scan their assigned QR code using the application. This action updates the database and sends notifications to the hostel management and the student's registered guardian. This feature provides

Fig.no.1

transparency and keeps all stakeholders informed about the resident's activities. If a student fails to check in or out within a specified timeframe, alerts are sent to notify the authorities, allowing them to take necessary action immediately.

Apart from tracking student movements, the application enhances hostel management efficiency. The system automates room allocations, ensuring that every student is assigned a room without conflicts. Additionally, the fee management module allows administrators to track payments, generate receipts, and notify students about pending dues. These features eliminate the need for manual paperwork and reduce administrative workload.

Security is further enhanced by incorporating access control mechanisms. Unauthorized individuals are restricted from entering the hostel premises without proper authentication. This is achieved by integrating the QR code system with security personnel monitoring at entry and exit points. If any unauthorized access attempt is detected, immediate alerts are triggered to inform hostel authorities.

The real-time notification system plays a vital role in ensuring the safety of hostel residents. Parents and guardians receive instant updates on their child's check-in and check-out status, giving them peace of mind. Additionally, the system can be expanded to include emergency alerts, allowing students to send distress signals to authorities in case of emergencies.

One of the key advantages of this application is its user-friendly interface. Hostel administrators, students, and parents can easily navigate through the app and access necessary information without any technical expertise. The system is designed to be scalable, meaning it can be implemented in hostels of varying sizes without significant modifications.

In summary, the Woman Safety and Check-in/Check-out System for Girl's Hostel Application is an innovative approach to hostel security and management. It ensures that student movements are accurately recorded, provides real-time notifications to parents and hostel authorities, and enhances overall operational efficiency. By leveraging modern technology like QR code scanning and automated notifications, this system creates a secure and well-organized hostel environment, benefiting both students and administrators.

2. Objectives

The primary goal of this application is to ensure the safety of girls staying in hostels by maintaining a secure and automated check-in/check-out system. This system notifies parents every time their ward enters or leaves the hostel, offering them peace of mind and encouraging responsible behavior. The admin panel ensures efficient monitoring and historical data management for the hostel authorities.

3. ANALYSIS & FEASIBILITY

3.1 Technical Feasibility

The system leverages **React** for the frontend and **Node.js** for the backend, with a **MySQL database** to store student, room, and fee details. This technology stack ensures scalability, flexibility, and performance. Additionally, QR code scanning is implemented using modern libraries and APIs, making it technically feasible within the project's scope.

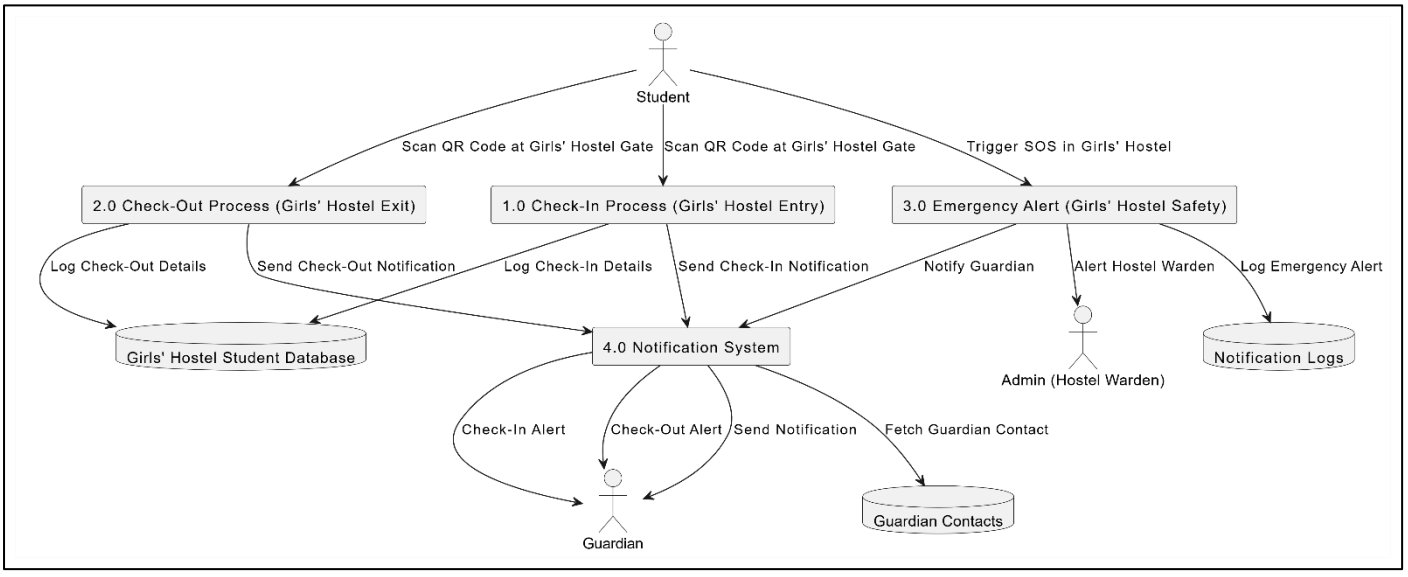
3.2 Financial Feasibility

The system's development is cost-effective as it uses open-source tools and frameworks. By reducing administrative workload and errors, the system provides a long-term financial benefit. Compared to the cost of maintaining a manual system, this automated solution is economically viable.

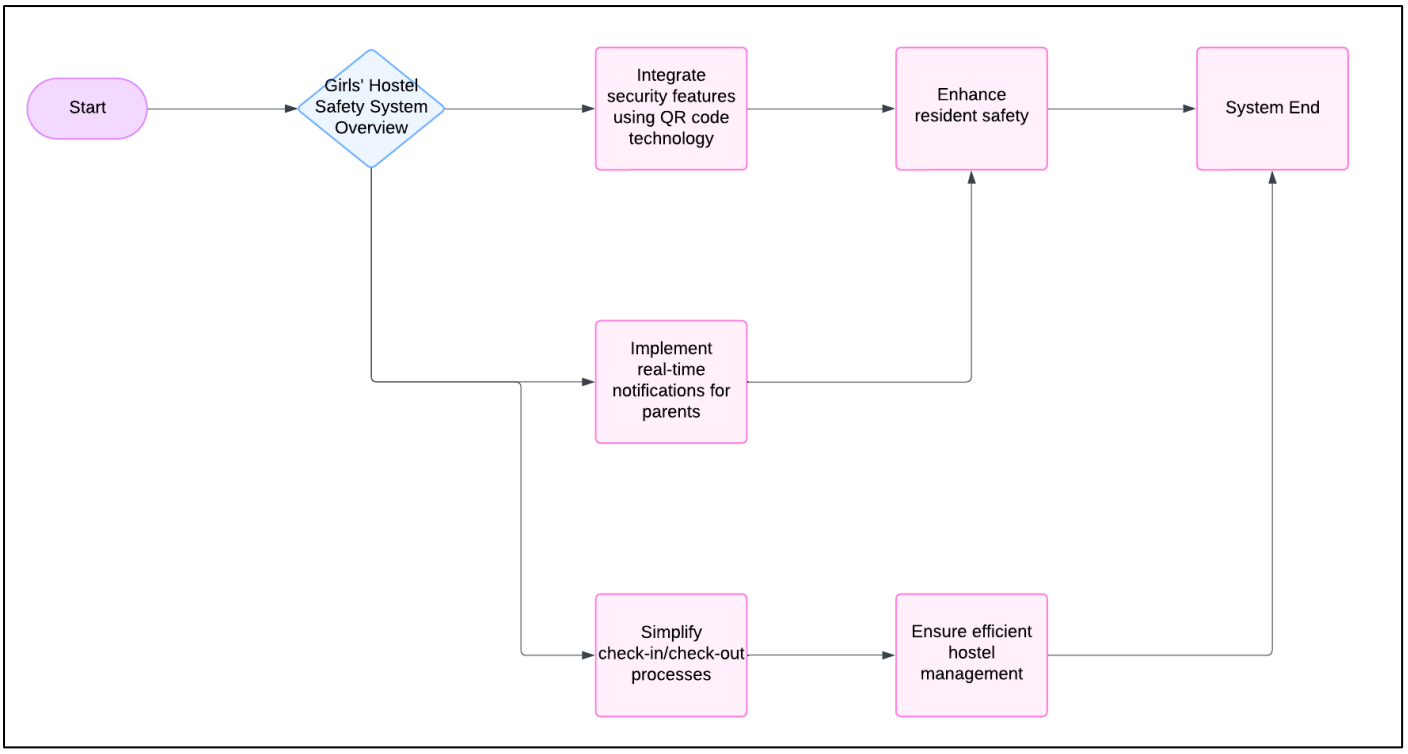
3.3 Resource Feasibility

The required hardware includes standard computers for administrative use and smartphones for scanning QR codes. Internet connectivity is essential for real-time SMS notifications and database updates. These minimal resources ensure the system is feasible for deployment.

- **DFD Diagram:**



- **System Architecture**



4. Advantages of the Proposed System

- Enhanced safety and security for residents.
- Real-time parental notifications for peace of mind.
- Automated logging eliminates manual errors.
- Easy monitoring and reporting for hostel authorities.

5. Applications

This system is suitable for:

- Educational Institutions: Colleges and schools with hostel facilities.
- Corporate Housing: Managing accommodations for employees.

6. Future Scope

- Integration with biometric systems for enhanced security.
- Expansion to other hostel types (e.g., co-ed, boys' hostels).
- AI-driven analytics for predicting trends and improving management.
- Multi-language support for diverse user groups.

7. CONCLUSIONS

The Hostel Management System provides a comprehensive solution to streamline hostel operations. It replaces manual processes with a user-friendly web-based system that automates student registration, room allocation, and fee management. Features like QR code scanning and SMS notifications enhance efficiency and communication. This project is a step toward modernizing hostel administration, making it more efficient and reliable.

8. ACKNOWLEDGEMENT

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