

Project Title :- GALAXY PRIME HOSTEL WEBSITE



Marwadi
University
Marwadi Chandarana Group



Name :- Niv Sapra

Subject :- CP

Sem :- 7th

En no :- 92310133001

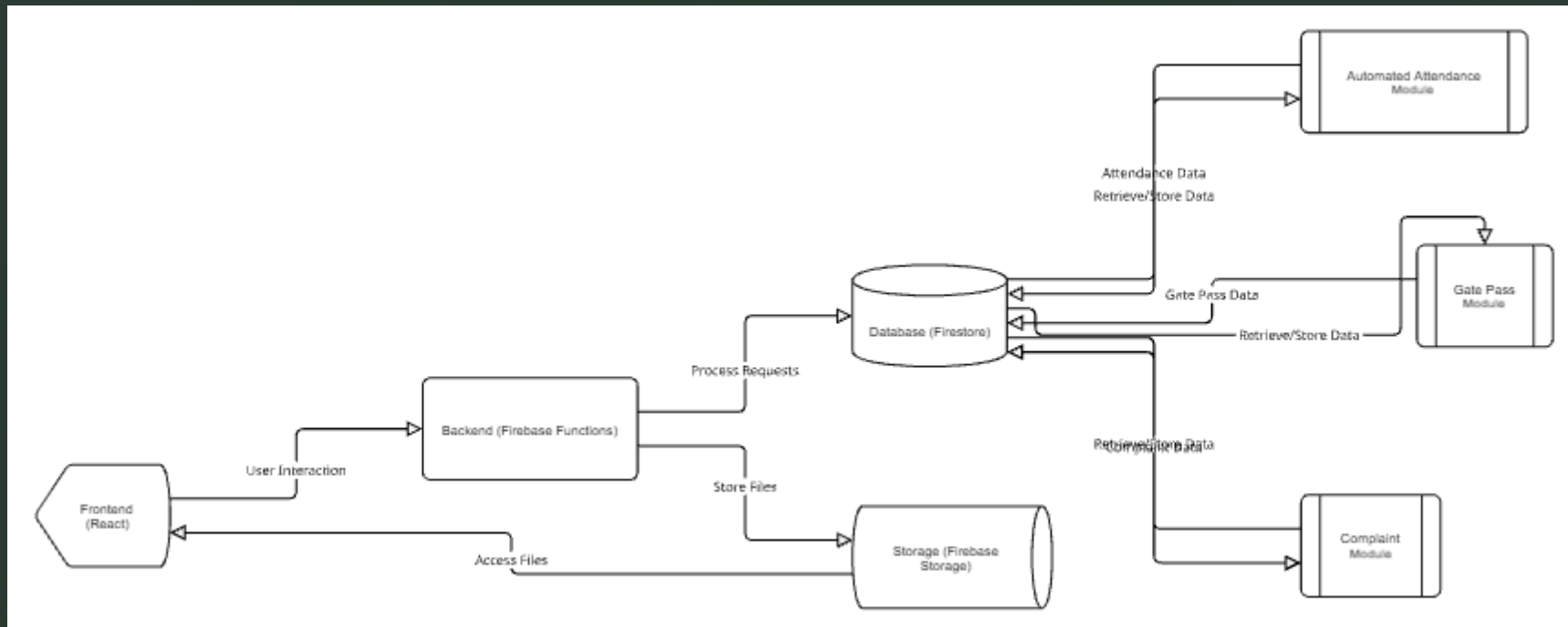
Submitted Under Guidance of :-

Prof. C.D.Parmar



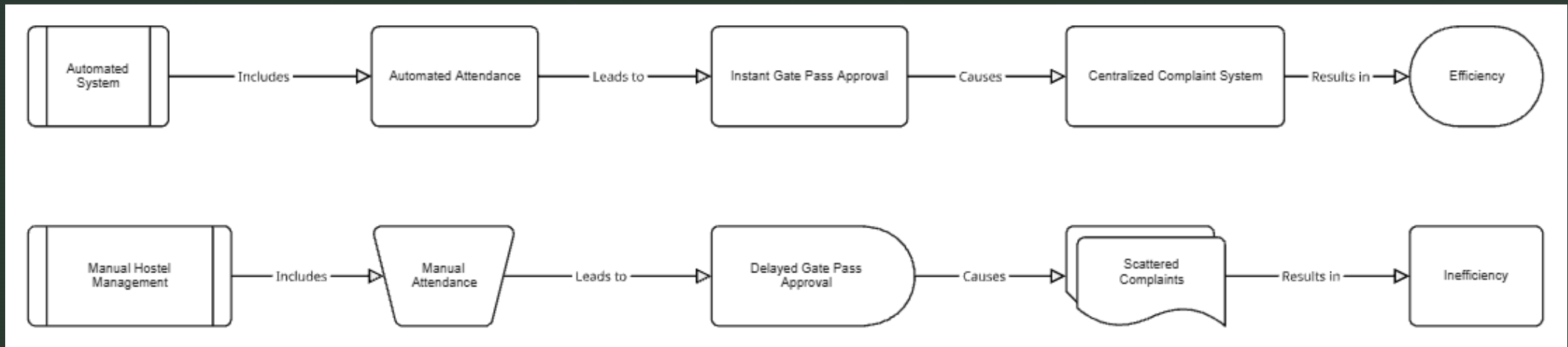
1. Introduction

- The Galaxy Hostel Management System is a comprehensive platform designed to streamline hostel operations. The system enables real-time attendance marking using webcam capture, automated gate pass management, and complaint tracking. By consolidating all operations into a single digital platform, students, wardens, and admins can interact efficiently, reducing manual work and ensuring accurate records. This introduction sets the context for why the project is necessary and highlights its scope.



2. Problem Statement

- Traditional hostel management involves pen-and-paper attendance, phone calls for gate passes, and unorganized complaint handling. These methods are prone to human error, cause delays, and make data tracking difficult. Faculty and wardens spend excessive time on routine tasks, while students face confusion regarding processes. This slide emphasizes the inefficiency and limitations of the current system, establishing the need for a digital solution.



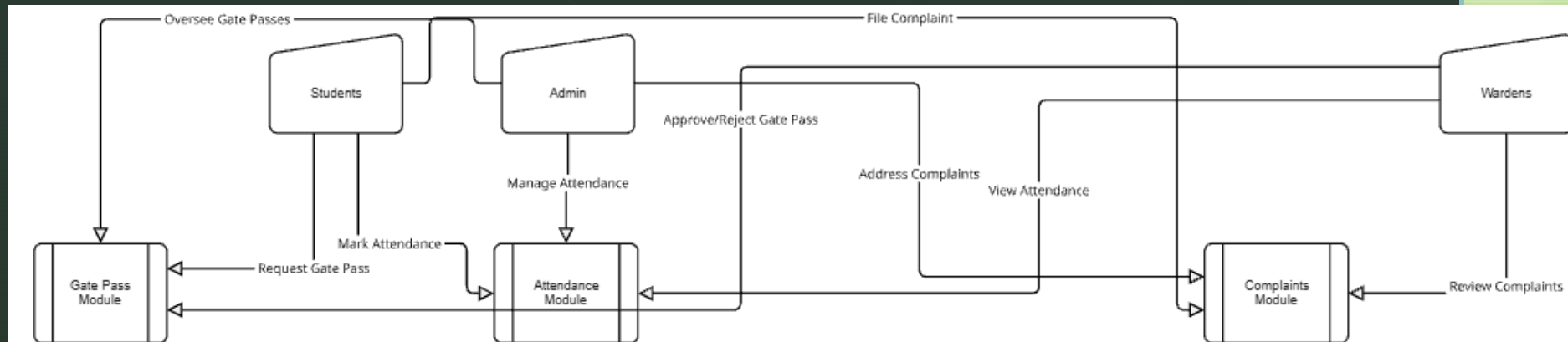
3. Objectives



- The primary objectives of the Galaxy Hostel System are to:
 1. Automate attendance marking using real-time webcam capture.
 2. Reduce manual work for wardens and faculty.
 3. Facilitate quick and organized gate pass approvals.
 4. Provide students a digital channel to submit complaints.
 5. Generate automated Excel attendance reports with present and absent lists.
- These objectives ensure the system is efficient, transparent, and scalable.

4. Stakeholders

- The project has three main stakeholders:
 - **Students:** They need a simple way to mark attendance, request gate passes, and lodge complaints without manual intervention.
 - **Wardens:** They require dashboards to monitor attendance, approve requests, and resolve complaints quickly.
 - **Admins:** They oversee the entire system, manage users, and maintain authenticity.
- Understanding these stakeholders ensures that the system meets real-world needs and improves user experience.



5. System Architecture

- The system architecture follows a modular, cloud-based approach.
- The **frontend** is built with Next.js and TailwindCSS, providing an interactive UI for students and wardens.
- The **backend** consists of Firebase Functions handling attendance processing, gate pass approvals, and complaint management.
- **Firestore** stores all user and attendance data, while **Firebase Storage** stores student images.
- **Firebase Auth** ensures secure role-based access for students, wardens, and admins.
This design provides scalability, security, and maintainability.

6. Technology Stack

- The system employs modern technologies for speed, scalability, and reliability:
 - **Frontend:** React, Next.js, TailwindCSS, HTML, CSS, TypeScript.
 - **Backend:** Firebase Functions for serverless execution and real-time data processing.
 - **Database & Storage:** Firestore for structured data, Firebase Storage for images.
 - **Authentication:** Firebase Auth for secure login with role-based access.
 - **Hosting:** Vercel ensures continuous deployment and global distribution.
- This combination allows the system to efficiently handle multiple users while maintaining security.

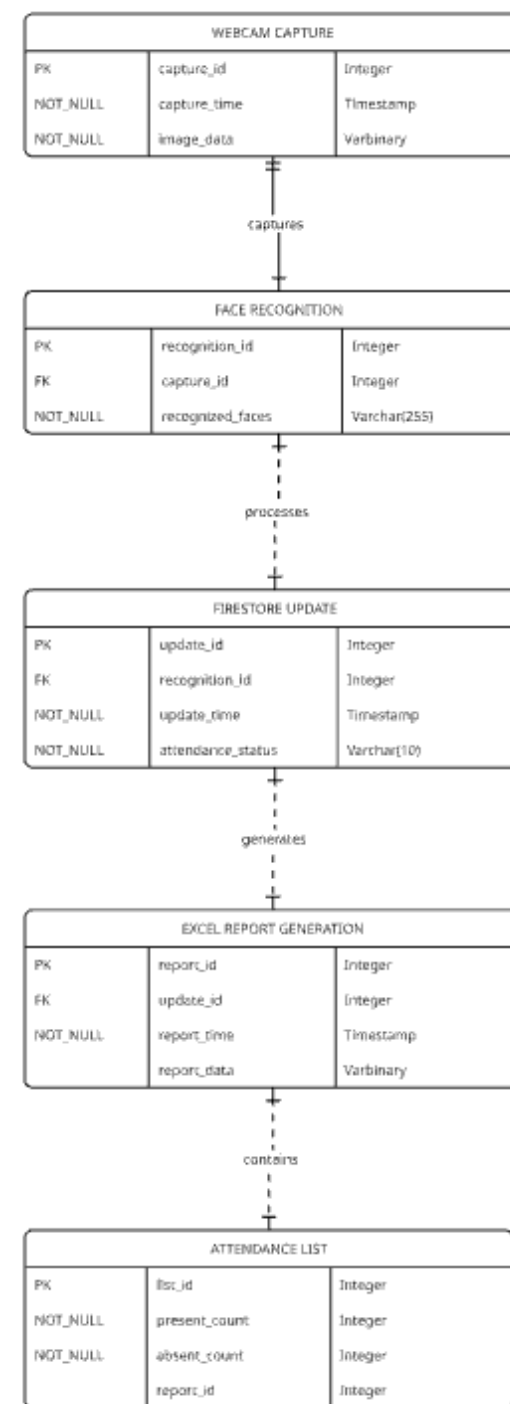
7. Modular Design



- The system is divided into five core modules:
 1. **Attendance Module:** Captures real-time student images and updates attendance records.
 2. **Gate Pass Module:** Allows students to request passes, with warden approval workflow.
 3. **Complaint Module:** Enables students to submit complaints, with tracking and resolution.
 4. **Reporting Module:** Generates automated Excel reports showing present and absent students.
 5. **Authentication Module:** Manages user roles and secure access.
- Modularity allows easy maintenance, debugging, and future enhancements.

8. Attendance Flow

- Students' faces are captured in real-time via webcam. Firebase Functions process each frame, match it against stored student images in Firestore, and mark attendance. Automated Excel reports are generated with separate sheets for Present and Absent students. This process ensures accuracy, speed, and eliminates manual attendance errors.



9. Gate Pass Module

- Students can submit gate pass requests specifying the reason and timing. Wardens receive notifications to approve or reject requests. Approved passes are logged in Firestore, and students receive real-time updates. This workflow streamlines movement tracking and reduces manual paperwork.

[← Back to Dashboard](#)

Gate Pass Management


Generate New Gate Pass

Create a new gate pass with QR code

Purpose

Out Time

Expected Return

 **Generate Gate Pass**


Gate Pass History

Your recent gate passes

Home

ACTIVE

Out: 28/09/2025, 06:02:00
Return: 30/09/2025, 00:02:00



Show this QR at the gate
Pass ID: GP-mg161pk4-QTROTS

Success!
Gate pass generated successfully!

10. Complaint Management

- Students can submit complaints directly via the system. Wardens can view, respond, and resolve complaints. Admins can monitor recurring issues and track resolution efficiency. This ensures transparency, faster response times, and accountability in hostel management.

The screenshot displays a web application for managing complaints. At the top, a dark blue header contains a 'Back to Dashboard' button on the left, the title 'Complaints' in the center, and a green success notification on the right that reads 'Success! Complaint submitted successfully!' with a close icon. The main content area is divided into two panels. The left panel, titled 'Report an Issue' with the subtitle 'Submit a new complaint', contains three input fields: 'Title' (empty), 'Category' (with a dropdown menu showing 'plumbing, electricity, mess...'), and 'Description' (empty). A dark blue 'Submit Complaint' button is at the bottom. The right panel, titled 'Your Complaints' with the subtitle 'Recent submissions', shows a single complaint card. The card has the title 'ROOM FAN', the category 'electricity', and the description 'Fan not working'. A 'pending' status tag is visible in the top right corner of the card.

← Back to Dashboard

Complaints

Success! Complaint submitted successfully!

Report an Issue

Submit a new complaint

Title

Category

plumbing, electricity, mess...

Description

Submit Complaint

Your Complaints

Recent submissions

ROOM FAN

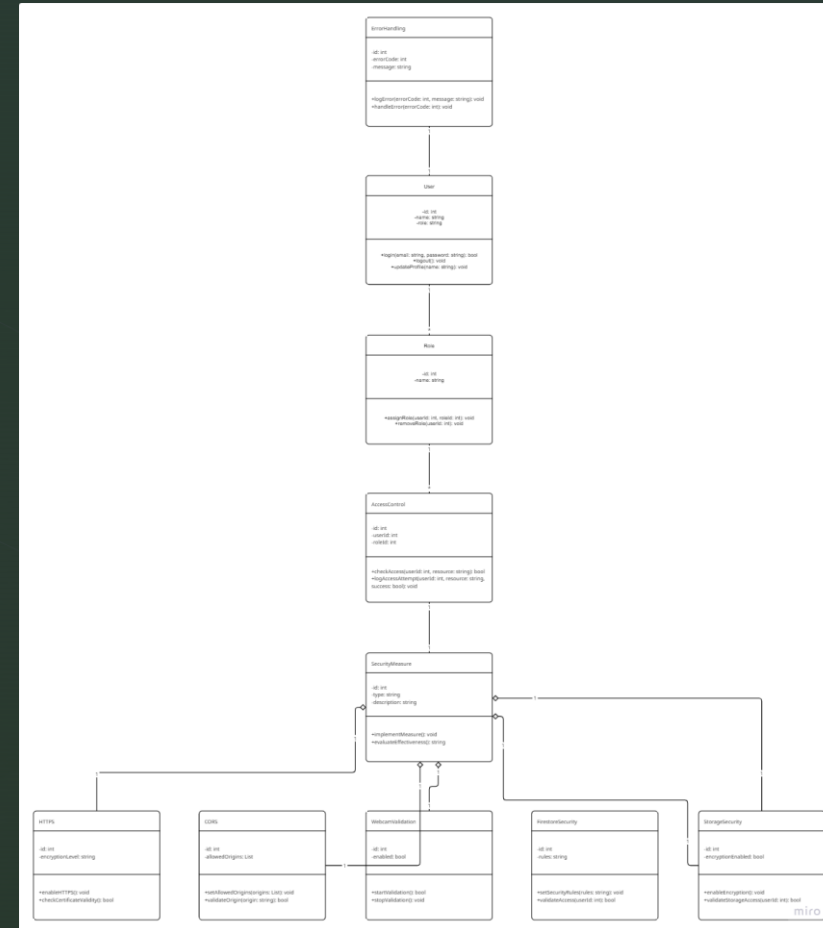
electricity

Fan not working

pending

11.Security & Validation

- Security is ensured through role-based access (student, warden, admin), HTTPS communication, and CORS restrictions. Validation checks include ensuring webcam frames are valid, preventing duplicate attendance marking, and verifying user identity before granting access. Firebase rules restrict data access based on roles, protecting sensitive student information.



12. Testing & Validation



- Unit and integration tests are performed to ensure each module functions correctly. Attendance accuracy, gate pass approvals, complaint logging, and report generation are validated. Performance metrics such as response time, real-time processing, and report correctness demonstrate the system meets its objectives.

13. Deployment & Maintenance

- The frontend is deployed on Vercel, while Firebase Functions manage backend processes. Firestore and Storage handle all data and images. Weekly backups, monthly dependency updates, and quarterly performance tests are scheduled to ensure system reliability. Auto-scaling handles peak usage efficiently.
- LINK :- <https://galaxy-hostel-prime-bnao.vercel.app/>

14. Conclusion & Future Scope

- The Galaxy Hostel Management System automates attendance, gate passes, and complaint handling, significantly reducing manual effort by approximately 80%. Future enhancements include AI-based anomaly detection in attendance, mobile notifications, analytics dashboards, and multi-hostel scalability, making the system a comprehensive solution for student accommodation management.



THANK YOU !

