Smart Hostel Management System

Project Proposal

Department of Computer Science
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Team Members

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Requirement Provider (RP)
Ms. Nida Sultan Nahra
(Hostel Warden, Namal University)

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1 Requirement Provider Agreement

This agreement confirms the collaboration between the student team and the Requirement Provider (RP) for the Smart Hostel Management System project. The goal of this agreement is to formalize the RP's role in providing requirements, feedback, and acceptance testing during milestone reviews.

Agreement Terms

- The RP (Ms. Nida Sultan Nahra) agrees to act as the primary user and subject matter expert for the Smart Hostel Management System.
- The Team agrees to meet the RP at least once every two weeks (physically or virtually) and to maintain meeting minutes for each meeting.
- The Team will produce the Milestone-1 deliverables (project proposal in LaTeX, meeting minutes template, and a recorded first meeting) and incorporate RP feedback in later milestones.
- The RP acknowledges that the current deliverable is a software model/proposal; later work may convert the model to a deployed online system.

Signatures (Placeholders)

Team Representative:	Requirement Provider:
Name: Muhammad Ahmad	Name: Ms. Nida Sultan Nahra
Sign: _____	Sign: _____
Date: _____	Date: _____

2 Stakeholder Identification

- **Requirement Provider (RP):** Ms. Nida Sultan Nahra Hostel Warden and Lecturer who identified real-world issues.
- **Hostel Warden and Assistants:** End-users for attendance verification, approvals, and room assignments.
- **Students (Residents):** Main users who will request gate-passes, report maintenance issues, and mark attendance.
- **Mess Committee / Staff:** Users who will post menus, handle payments, and record complaints.
- **Security Guards:** Personnel responsible for validating approved passes and monitoring movements.

3 Software Development Methodology

An **Agile (Scrum-inspired)** approach will be followed because it allows iterative progress and frequent feedback from the RP. Each milestone will serve as a sprint focusing on new modules such as attendance, gate-pass, room management, and mess operations.

- Short sprints will include design, feedback, and refinement stages.
- RP meetings will be held bi-weekly for demonstrations and review.
- Documentation and prototype updates will be version-controlled on GitHub.

4 Tools and Technologies

- **Front-End:** React.js (component-based interface)
- **Back-End:** Node.js + Express.js (mock API for model stage)
- **Database:** JSON fixtures or MongoDB for future deployment
- **Design:** Figma (for wireframes and user flows)
- **Version Control:** GitHub (repository and issue tracking)
- **Documentation:** LaTeX (formal report preparation)

5 Core Functionalities

1. **Attendance Module:** Automated attendance record linked with biometric data and real-time dashboard for wardens.
2. **Gate-Pass System:** Online leave and outing requests with digital approval and security notifications.
3. **Room Management:** Allocation according to capacity, real-time vacant room view, and clearance tracking.
4. **Mess Management:** Menu publishing, complaint handling, and emergency meal requests with limited credit.
5. **Day Scholar and Visitor Tracking:** Notifications for security when day scholars or visitors enter hostel premises.
6. **Centralized Student Record:** Unified database for attendance, permissions, and hostel history.