GMR Institute of Technology

Department of Computer Science and Engineering

Title of the Project : **Fingerprint-Based Out Pass Generation System**

Name of the Course : B.Tech. (CSE) Section: B Semester: 7th

Academic Year : 2024-2025

ABSTRACT:

This project develops a scalable system for issuing biometric-based passes to hostel students, addressing both long-term and short-term leave requests. The system manages two types of passes: "Pink Pass" for extended holidays and "Outpass" for short outings. The process starts with capturing the student's fingerprint using a biometric scanner, which is then verified against stored biometric data. Upon successful verification, the system issues a pass with the student's name, roll number, and issuance time, which is then printed and given to the student. To ensure transparency, an SMS notification is automatically sent to the student's registered parents, informing them of the pass issuance. The system supports multiple client systems accessing a central server, allowing several administrators to issue passes simultaneously, a feature critical during peak periods. It is designed to handle up to 4,000 students, the system efficiently manages high traffic and ensures quick retrieval of biometric data, minimizing delays in the identity verification process. It emphasizes both security and accessibility, making it suitable for large-scale hostel environments where multiple administrators may need to operate concurrently. In summary, this project provides an efficient, secure, and user-friendly solution for managing student leave requests in a hostel setting, enhancing both operational efficiency and parental transparency.

Keywords: Biometric verification, Fingerprint authentication, Pass issuance system, SMS notifications, Client-server architecture, Student leave management.

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