

Biometric Attendance System with Custom Alert Using Raspberry Pi

Prof. S. M. Pangavhane¹, Aditya R. Shejul², Deepak K. Maurya³,

Hansraj K. Desale⁴, Ketan P. Rokade⁵

Assistant Professor, Department of E&TC¹

Student's, Department of E&TC^{2,3,4,5}

Pune Vidyarthi Griha's College of Engineering and S. S. Dhamankar Institute of Management, Nashik

Abstract: *In this paper, we present a Smart Attendance System that integrates a fingerprint sensor with NodeMCU, Raspberry Pi for data handling and sharing, and a GSM module for sending messages to parents of absent students. The system is backed by a web application hosted on Vercel, utilizing MongoDB as the database and a JavaScript-based frontend and backend. The system provides three types of logins: Principal, Teacher, and Parent. The Principal manages student admissions, the Teacher marks attendance and sends notifications, while the Parent can monitor their child's attendance records. The proposed system enhances efficiency, reduces manual intervention, and ensures real-time tracking. Experimental results indicate high accuracy and reliability, making it a viable solution for modern educational institutions*

Keywords: Smart Attendance System, IoT, Fingerprint Sensor, NodeMCU, Raspberry Pi, GSM Module, Integration, MongoDB, JavaScript, Biometric Authentication, Automated Attendance

