



## “Implementation of Employee Tracking and Monitoring System Using Android App”

*Narayan Jagtap<sup>\*1</sup>, Amol Parhad<sup>\*2</sup>, Ashravanti Lavhare<sup>\*3</sup>, Ashutosh Mulik<sup>\*4</sup>*

<sup>\*1,2,3,4</sup> Student, Information Technology, Pune District Education Association's College of Engineering, Pune, Maharashtra, India

### ABSTRACT:

This paper presents the development and implementation of an Android-based Employee Tracking and Monitoring System aimed at improving workforce management and organizational productivity. The system allows employees to securely log in and authenticate their identity before accessing the application. Key features include employee attendance management, where users can punch in and punch out to record their working hours. The application uses GPS and geofencing technology to provide live location tracking, ensuring employees are within assigned work zones. It also supports employee tracking during field visits using the visit management module. Task assignments are handled through the task management feature, where employees can receive tasks, provide task updates, and mark them as completed.

To enhance user experience, the system includes a chatbot for assistance, helping users navigate and get support. The integrated document viewer allows access to official files and resources. Admin users can use the admin login and monitoring system to view employee activities, manage notices, and send alert notifications when needed.

This system combines multiple tools into one smart application, providing a reliable solution for real-time employee monitoring and efficient communication between staff and management

**Keywords:** Employee Attendance Management, Chatbot for Assistance, Document Viewer, Geofencing, Notice Management, Alert Notification, Task Management, Visit Management,

### 1. INTRODUCTION

In today's fast-evolving digital age, organizations are constantly seeking innovative solutions to improve workforce productivity, accountability, and operational transparency. The traditional methods of employee monitoring and attendance management are often plagued with inefficiencies, inaccuracies, and lack of real-time data, especially in companies that rely on fieldwork and remote employees. To address these limitations, this paper presents the design and development of an Employee Tracking and Monitoring System using an Android-based mobile application integrated with Firebase.

The proposed system aims to transform conventional employee management by leveraging modern technologies such as GPS tracking, geofencing, real-time location updates, and cloud-based backend services. It provides a centralized platform for organizations to monitor their employees' movements, track their work progress, manage attendance, and ensure task accountability. One of the core aspects of the system is the login and authentication mechanism, which ensures secure access for both employees and administrators using Firebase Authentication, preventing unauthorized usage and ensuring data privacy.

Employee attendance management is simplified through punch-in and punch-out functionalities that are geo-tagged and timestamped, providing accurate logs of working hours. The use of geofencing technology adds an additional layer of control by triggering alerts or restricting actions if employees move out of a designated work zone. Live GPS tracking allows administrators to view real-time employee locations, which is particularly useful for companies with field agents or on-site service staff.

To enhance user interaction and support, the application includes an integrated AI-based chatbot that offers real-time assistance and answers to common queries, reducing dependency on manual HR support. Additionally, the app features a document viewer for accessing important files and work-related documents directly from the mobile interface, enabling a more informed and efficient workforce.

Administrators are provided with a dedicated admin login and monitoring dashboard, which serves as the control center for managing employees, assigning tasks, tracking status updates, managing visits, and broadcasting notices. The system also supports alert notifications to inform users about important updates, meetings, task deadlines, and geofence breaches.

Furthermore, the system incorporates a task and visit management module, allowing managers to assign, update, and track employee visits and tasks in real time. Each task status update is logged and visible to both employees and supervisors, ensuring transparency and improving workflow efficiency. This system is powered by Firebase, which offers robust backend services such as real-time database, authentication, cloud messaging, and storage. Firebase enables seamless data synchronization across devices and supports the scalability required for enterprise-level applications.

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## 2. LITERATURE SURVEY

The literature survey examines existing research on employee tracking and management systems, highlighting various approaches and technologies that inform the design of the Employee Tracking Monitoring System.

Paper [1] The research titled “Geofencing for Workforce Management” by Emily Davis and Robert Brown delves into the implementation of geofencing technology within employee management systems. The authors demonstrate how geofencing can improve location-based services by accurately monitoring employee attendance and ensuring compliance with designated work boundaries. This finding is particularly relevant for organizations with remote or field-based employees, making it a crucial feature in the proposed application.

Paper [2] In “Analyzing Employee Productivity through Data Analytics.” Michael Wilson and Anna White examine the utilization of data analytics in assessing employee productivity. The study presents methods for collecting and Analyzing attendance data to derive valuable insights that inform management decisions. This research highlights the significance of data-driven approaches, which will be integrated into the analytics features of the Employee Tracking Monitoring System to enhance organizational efficiency.

Lastly, the study “The Impact of Automation on Employee Attendance Management” by Laura Green and David Harris investigates the effects of automated attendance systems on organizational performance. Through various case studies, the authors illustrate how automation reduces administrative burdens and improves accuracy in attendance records. Their findings reinforce the need for an automated solution in the proposed system, emphasizing its potential to streamline attendance management processes.

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## 3. METHODOLOGY

The Employee Tracking and Monitoring System is implemented using an Android application integrated with Firebase for real-time data handling. The system includes secure login and authentication for both employees and admins using Firebase Authentication. Employee tracking is achieved through GPS and geofencing to monitor live locations and trigger alerts when employees enter or leave designated areas. Attendance is managed with punch in and punch out features, recording time and location.

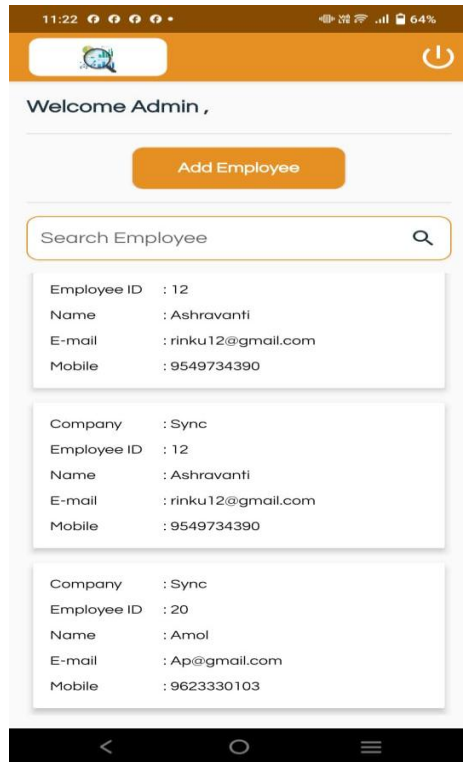
Admins can assign tasks and monitor updates, while employees can view and update task statuses. Visit management logs employee field visits with location and time data. A chatbot assists users with basic queries and app navigation. The document viewer allows employees to access important files, while notice management and alert notifications keep users informed of updates.

Firebase Cloud Messaging ensures real-time communication, and Firebase Storage handles file uploads and access. The admin dashboard offers full control over monitoring and managing employee activities, ensuring efficient workforce management in real time.

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## 4. RESULTS AND DISCUSSION

The Employee Tracking and Monitoring System using an Android app includes features like login and authentication, employee tracking via GPS and geofencing, attendance management with punch-in/punch-out, task and visit management, chatbot assistance, document viewer, notice management, and alert notifications. Admins can monitor employee activity through a separate login.



11:22 64%

Welcome Admin ,

Add Employee

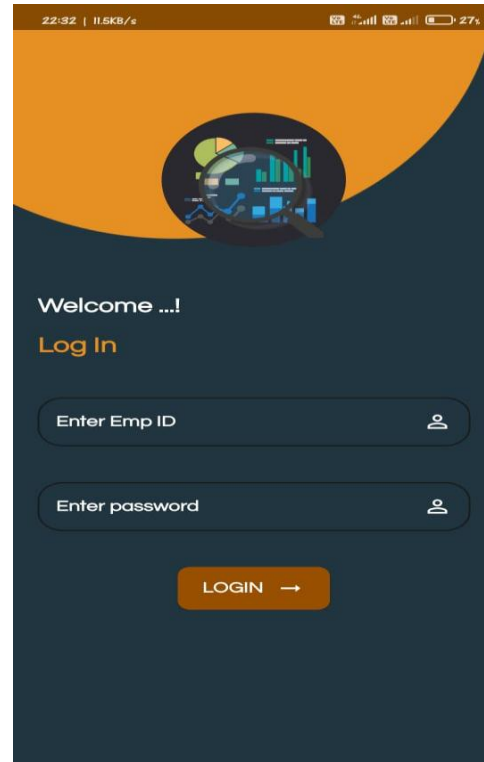
Search Employee

Employee ID	: 12
Name	: Ashravanti
E-mail	: rinku12@gmail.com
Mobile	: 9549734390

Company	: Sync
Employee ID	: 12
Name	: Ashravanti
E-mail	: rinku12@gmail.com
Mobile	: 9549734390

Company	: Sync
Employee ID	: 20
Name	: Amol
E-mail	: Ap@gmail.com
Mobile	: 9623330103

Step 1: Admin Login



22:32 | 11.5KB/s 27%

Welcome ...!

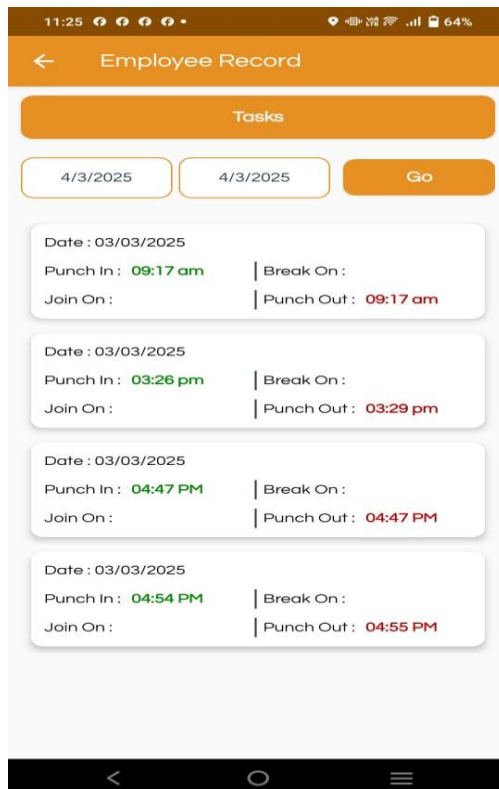
Log In

Enter Emp ID

Enter password

LOGIN →

Step 2: Add Employee



11:25 64%

Employee Record

Tasks

4/3/2025 4/3/2025 Go

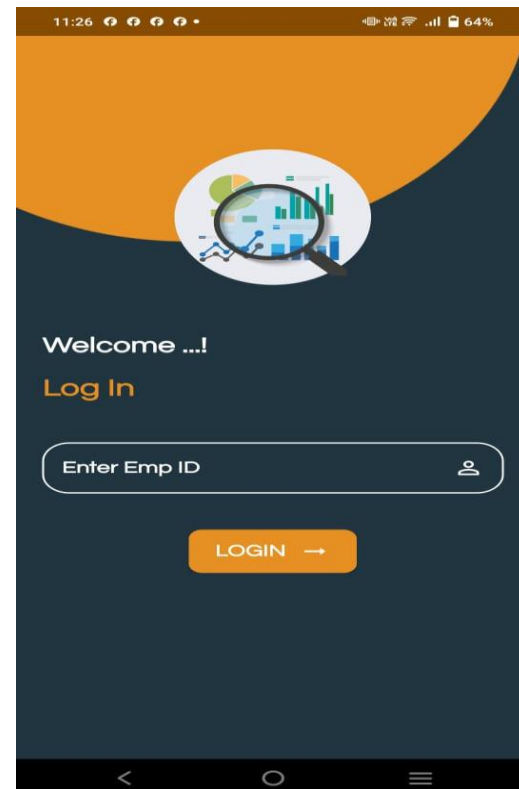
Date : 03/03/2025	Punch In : 09:17 am	Break On :	Join On :	Punch Out : 09:17 am
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Date : 03/03/2025	Punch In : 03:26 pm	Break On :	Join On :	Punch Out : 03:29 pm
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Date : 03/03/2025	Punch In : 04:47 PM	Break On :	Join On :	Punch Out : 04:47 PM
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Date : 03/03/2025	Punch In : 04:54 PM	Break On :	Join On :	Punch Out : 04:55 PM
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Step 3: Employee Record



11:26 64%

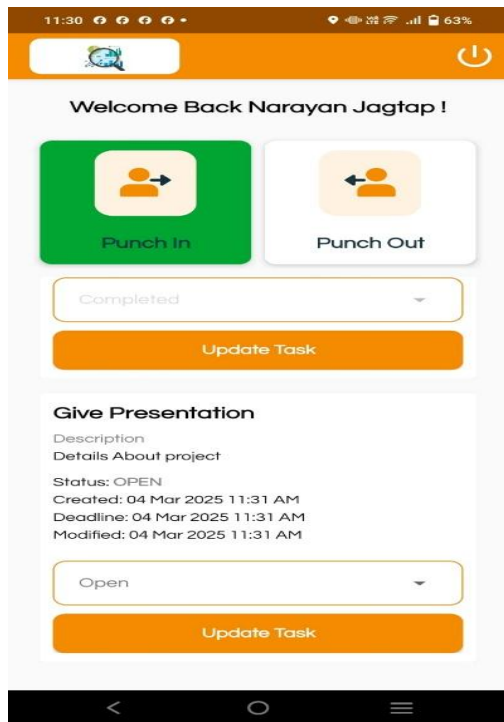
Welcome ...!

Log In

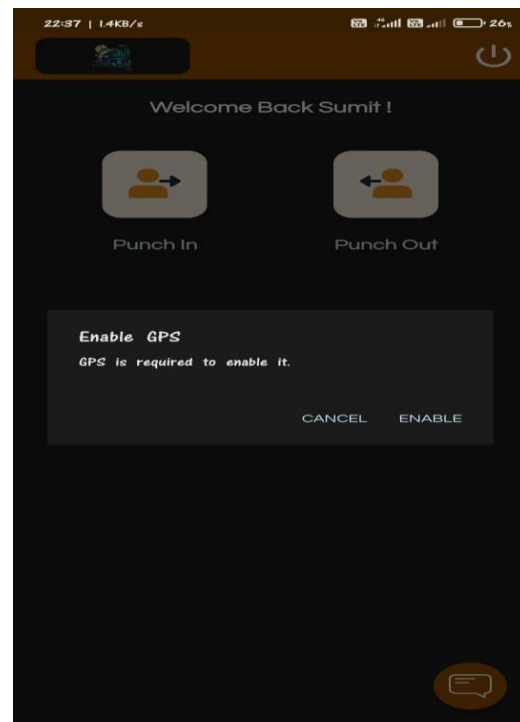
Enter Emp ID

LOGIN →

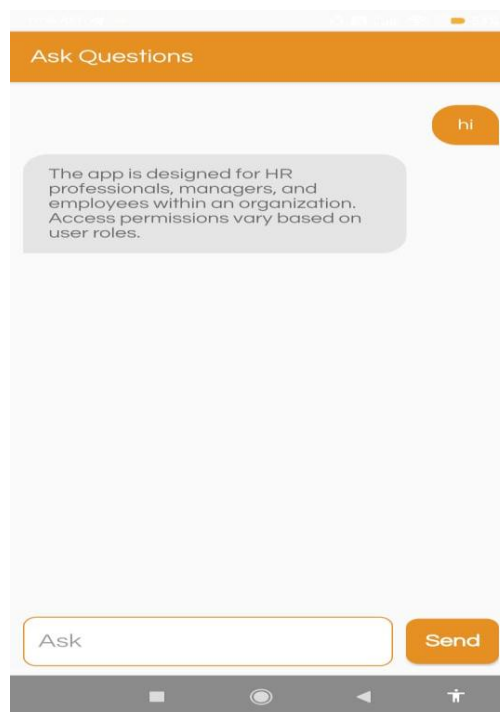
Step 4: Employee Login



Step 5: Puch In &amp; Punch Out



Step 6:Enable GPS



Step 7: Chatbot

#### 4. CONCLUSION

The implementation of the Employee Tracking and Monitoring System using an Android application provides an efficient, real-time solution for managing workforce activities. By integrating GPS, geofencing, Firebase, and other Android-based technologies, the system enhances transparency, accountability, and productivity within an organization. Features such as live location tracking, automated attendance through punch in/punch out, task and visit management, chatbot assistance, and real-time notifications streamline daily operations and reduce manual errors.

The admin panel enables effective monitoring and decision-making, while the user-friendly mobile interface ensures ease of use for employees. Overall, the system offers a cost-effective, scalable, and reliable approach to modern employee management.

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## REFERENCES

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1. Android Developers. (2024). Location and Maps. Retrieved from [https:// developer.android.com/training/location](https://developer.android.com/training/location) Official documentation that explains how to build location-aware apps using location services and Google Maps on Android.
2. Firebase. (2024). Firebase Realtime Database Documentation. Retrieved from <https://firebase.google.com/docs/database> A detailed guide for implementing real-time database operations, user authentication, and backend logic using Firebase services.
3. McWherter, J., & Gowell, S. (2020). Professional Android Application Development. Wiley Publishing. This book covers advanced concepts in Android app architecture, background processing, and API integration for real-world projects.
4. ISO/IEC 25010. (2011). Systems and Software Engineering – Systems and Software Quality Requirements and Evaluation (. This international standard defines a quality model to evaluate the performance, security, maintainability, and usability of software systems.
5. Schneier, B. (2015). Applied Cryptography: Protocols, Algorithms, and Source Code in C. Wiley. A foundational text on cryptographic techniques used to secure mobile data transmission, applicable in the development of secure employee tracking systems.