IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 6, Issue 2, January 2026
Impact Factor: 7.67

Preventing loopholes through Smart Monitoring Using Geo-Fencing.

Chaitanya Digrale, Himali Chaudhari, Mayur Patil, Tanishka Aher, Prof. Mrs. K. N. Ahire
Diploma Student, Department of Computer Technology,
K. K. Wagh Polytechnic, Nashik, India
chaitanyadigrale@gmail.com, himalichaudhari2529@gmail.com,
mayuron03@gmail.com, aahertanishka18@gmail.com

Abstract: *Sales executives play a crucial role in pharmaceutical distribution, yet traditional monitoring systems often fail to ensure transparency, accuracy, and real-time accountability. Issues such as fake attendance, sales manipulation, delayed reporting, and lack of location verification reduce productivity and create operational loopholes. To address these challenges, this project proposes a* ***Geo-Intelligent Mobile and Web-Based Monitoring System*** *that integrates real-time GPS tracking, geofencing, automated order management, and digital reporting. The system ensures that sales executives work within their assigned areas, follow defined routes, and submit authentic data directly from the field. A centralized admin panel provides live monitoring, task assignment, and performance evaluation through detailed analytics. By automating these processes, the system eliminates manual errors, strengthens accountability, and enhances overall efficiency in pharmaceutical sales operations. This solution ultimately supports better decision-making, improves daily productivity, and enables distributors to achieve more accurate and profitable outcomes.*

Keywords*:* Pharmaceutical sales monitoring, Geofencing technology Geo-Intelligent Tracking, GPS-Based Monitoring etc.

I. INTRODUCTION

In the pharmaceutical distribution industry, agencies and distributors heavily rely on sales executives to achieve daily sales targets and ensure consistent revenue growth. However, a significant operational loophole exists where many sales executives manipulate the system by splitting higher sales across multiple days to meet daily targets, ultimately impacting the company's overall performance and profitability. Additionally, existing attendance tracking systems, which rely on mobile applications with photo-based check-ins, are prone to misuse since employees often provide proxy attendance using pre-captured images or incorrect location data.

To address these challenges, this project proposes the development of a Geo-Intelligent Mobile Application integrated with an Admin Panel for real-time order management, accurate attendance tracking, and performance monitoring. The system enables medical store orders to be directly assigned to specific sales executives, who must physically visit the store, capture a live image on-site, and validate their presence through real-time GPS-based location tracking. The application restricts uploading images from the gallery and ensures location-based verification, eliminating proxy attendance. Additionally, the implementation of geofencing technology ensures that sales executives remain within their designated operational zones, thereby improving accountability and maximizing sales performance.

By adopting this solution, agencies and distributors can enhance operational transparency, prevent sales manipulation, improve employee productivity, and achieve higher daily sales targets, ultimately leading to better business outcomes and increased profitability.

IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429 Volume 6, Issue 2, January 2026 Impact Factor: 7.67

1.1 Background

Sales and field-work industries—especially pharmaceutical distribution—depend heavily on sales executives who visit different medical stores daily. These executives are responsible for taking orders, reporting sales, and marking attendance.

However, many operational problems exist in the traditional system:

- Fake attendance using old photos or wrong location.
- Sales manipulation, where an executive divides one large sale into small sales across multiple days.
- No real-time tracking, so the admin cannot verify if the executive actually visited any shop.
- Manual reporting, creating data inaccuracy and delays.
- Difficulty in monitoring performance due to lack of proof.

To solve these issues, a smart digital solution is required—one that ensures transparency, eliminates manipulation, and provides real-time tracking.

This project introduces a Geo-Intelligent Sales Monitoring System where sales, attendance, and location tracking are combined in one integrated platform.

1.2 Contribution of This Work

This project adds several improvements over traditional attendance and sales systems:

1. A complete digital transformation of sales tracking

Instead of manual registers and verbal updates, everything becomes automated and stored in a database.

2. Real-time location verification

The system uses GPS to track the live location of sales executives, ensuring they are physically present at the required place.

3. Elimination of manipulation

Since data is captured instantly, executives cannot:

- fake attendance
- send wrong location
- delay order submissions
- split sales across days

4. Improved accountability

Executives know their movements and tasks are being monitored, which increases discipline and productivity.

5. Centralized admin panel

Admins can see all data (orders, location, performance) in one dashboard.

6. Strong reporting system

Weekly, monthly, and daily analytics help companies make better business decisions.

II. PROPOSED METHODOLOGY

The system follows a structured approach:

Step 1: Admin assigns orders

Admin uses the web portal to assign order tasks to sales executives including store name, address, and instructions.

Step 2: Executive receives tasks on mobile app

The app shows all assigned orders with details and deadlines.

IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 6, Issue 2, January 2026
Impact Factor: 7.67

Step 3: Executive visits the location
GPS monitoring ensures they are actually moving towards the required store.

Step 4: Attendance and task status update
Executives update their task progress, mark attendance, and submit order details through the app.

Step 5: Real-time monitoring
Admin sees:
• current location
• route taken
• time spent at store
• number of orders completed

Step 6: System stores all data
The backend stores information for reports, analysis, and future review.
This methodology ensures workflow transparency and eliminates fraud.

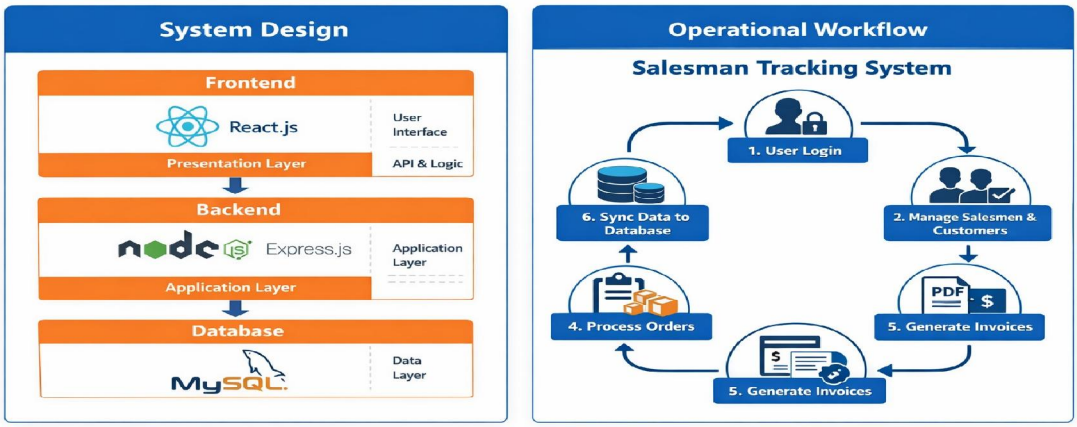

Fig 1. System Design & Operational workflow of Salesman Tracking System

1.1 System Design
The system is built with three major components:
1. Mobile Application (Sales Executive Panel)
Features:
• Shows assigned tasks and orders
• Allows attendance marking
• Location sharing
• Updates the status of visits and orders
• Shows notifications and reminders

IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429 Volume 6, Issue 2, January 2026 Impact Factor: 7.67

2. Admin Panel (Web Application)
Features:
• Assign orders
• Track live location of executives
• Monitor attendance
• View daily/monthly sales reports
• Receive alerts for rule violations

3. Backend Server & Database
The backend:
• Stores all data (orders, attendance, location)
• Handles requests between app and admin panel
• Ensures security, speed, and proper functioning

Database organizes the following:
• User details
• Order details
• Attendance logs
• GPS history
• Reports and analytic

1.2 Operational Workflow of Salesman Tracking System
The complete working flow:
1. Login Phase
Sales executive logs into the app.
Admin logs into the dashboard.

2. Task Assignment
Admin enters details of the order.
Task immediately appears on executive's mobile.

3. Field Visit & Tracking
As the executive moves, the system continuously collects:
• GPS location
• Time of arrival
• Time of leaving the store

4. Attendance Management
Executive marks attendance from the field with location verification only.

5. Task Update
Executive updates task status:
• Pending
• In Progress
• Completed

6. Data Sync
All updates are sent to the server instantly.

IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 6, Issue 2, January 2026
Impact Factor: 7.67

7. Admin Monitoring

Admin can see everything in real-time:

• Currently active executives
• Distance travelled
• Completed orders
• Delayed visits
• Area restrictions (geofencing)

8. Reporting

The system automatically generates:

• Daily report
• Weekly summary
• Monthly analysis

III. SYSTEM REQUIREMENTS

3.1 Hardware Requirements

For Executives:

- Android smartphone with GPS
- Internet connection
- Minimum 2GB RAM

For Admin:

- PC or laptop
- High-speed internet
- Webcam (optional)

Server-side:

- Cloud server (AWS, Google Cloud, or local)
- Minimum 4GB RAM
- 50GB storage

3.2 Software Requirements

Mobile App Side:

• Android OS
• Flutter / Java / React Native platform
• Google Maps API

Admin Panel Side:

• Web browser (Chrome recommended)
• HTML, CSS, JavaScript
• Framework: Laravel, React, or Angular

Backend:

• MySQL database
• REST APIs
• Server-side language: PHP, Node.js, or Python

IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 6, Issue 2, January 2026
Impact Factor: 7.67

IV. LITERATURE SURVEY

Previous research highlights the growing need for smart employee tracking and automated attendance systems, especially for field-based work.

1. Employee Tracking Systems

Studies show that mobile-based GPS tracking helps organizations monitor employee movement in real time. It improves transparency, reduces time theft, and ensures employees follow assigned routes.

2. Smart Attendance Systems

Research identifies major problems in traditional attendance, such as fake check-ins, incorrect location, and misuse of photos. GPS-based attendance and geofencing are proven to reduce fraud by ensuring attendance is marked only from the correct location.

3. Sales & Performance Monitoring

Existing studies show that digital sales tracking increases accuracy and eliminates manipulation in sales entries. Automated task updates help managers identify delays and evaluate performance effectively.

4. Inventory & Order Management Systems

Research on digital inventory and order systems shows improved reliability, faster order recording, and reduced manual errors, supporting the shift toward automated sales workflows.

V. RESULT AND ANALYSIS

The implementation of the Geo-Intelligent Sales Monitoring System produced highly effective and measurable results that addressed the existing problems within pharmaceutical field operations. The system delivered accurate real-time GPS tracking, allowing administrators to monitor the exact movement and live location of each sales executive, ensuring that visits were genuinely completed and routes were followed as assigned. Sales manipulation was significantly reduced because order entries were time-stamped, automatically stored, and synchronized, preventing executives from splitting large sales into multiple days or entering false information. Communication between the admin and field staff improved dramatically, as the application replaced manual phone calls and messages with instant digital notifications, reducing errors and saving time. The automated workflows resulted in faster task completion, enabling executives to complete more store visits per day and increasing the efficiency of the entire sales cycle. Reporting and analysis also became more accurate and reliable; since all attendance logs, order updates, and movement records were captured digitally, the system generated consistent daily, weekly, and monthly performance reports without human error. Geofencing features strengthened accountability by restricting executives to their assigned zones and issuing alerts in case of boundary violations, which greatly minimized fraudulent behavior. Overall, the system enhanced productivity, transparency, and accuracy, leading to improved sales performance, reduced administrative workload, and a more disciplined work environment. The results clearly demonstrate that the proposed solution provides a strong, scalable, and efficient framework for managing field sales operations.

VI. FUTURE SCOPE

The proposed Geo-Intelligent Sales Monitoring System has strong potential for future expansion through advanced technical enhancements that can further improve efficiency and automation. One major extension is the integration of AI-based sales prediction, where machine learning algorithms can analyze historical sales data, seasonal demand patterns, and customer behavior to accurately forecast future sales and assist distributors in planning stock levels. The system can also incorporate automatic route optimization, enabling intelligent algorithms to calculate the shortest and most efficient travel path for sales executives, thereby reducing time, fuel consumption, and operational cost. Another enhancement is voice-based reporting, where speech-to-text technology allows executives to update order status and submit reports through voice commands, making fieldwork faster and more convenient. Additionally, introducing offline functionality will allow the mobile application to operate in areas with poor or no internet connectivity; all data will be stored locally and synchronized automatically once the connection is restored. Beyond pharmaceutical distribution, the system can be adapted for various other industries such as FMCG, courier services, logistics companies, and field-service technicians, making it a versatile and scalable workforce management solution. In the long

IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 6, Issue 2, January 2026
Impact Factor: 7.67

term, the system can also be integrated with ERP software, connecting sales tracking with inventory, billing, and financial modules to create an end-to-end enterprise management ecosystem. These future enhancements will significantly expand the system's usability, automation capabilities, and effectiveness across different field-based industries.

VII. CONCLUSION

The Geo-Intelligent Sales Monitoring System provides an advanced and highly reliable technological framework for resolving the major challenges associated with pharmaceutical field operations. By integrating real-time GPS tracking, geofencing-based area validation, automated order management, and centralized digital reporting, the system ensures complete transparency and accuracy in daily sales activities. It successfully eliminates critical issues such as fake attendance, sales manipulation, and unverifiable location data, enabling administrators to validate fieldwork with confidence. The system's structured workflow ensures smooth task allocation, efficient route monitoring, and precise performance analysis, resulting in improved accountability and discipline among sales executives. Through automated reporting and accurate data collection, the system supports strategic decision-making and improves overall operational productivity. Ultimately, the proposed solution enhances organizational efficiency, boosts revenue, strengthens monitoring capabilities, and delivers a comprehensive digital platform suitable for modern sales-driven industries. It stands as a complete, scalable, and future-ready solution for transforming traditional field sales operations into a transparent and intelligent ecosystem.

REFERENCES

[1]. Chirag Narang*1, Zeeshan Shaikh*2, Lisa Sharma*3, Ritika Gupta*4, Sanjay Wankhade*5, Employee Tracking System, India https://www.irjmets.com/uploadedfiles/paper/issue_4_april_2022/20722/final/fin_irjmets1649500550.pdf

[2]. Authors: Kapadnis, Bhairavi, Ghumare, Aishwarya, Deore, Kaveri Sales monitoring, Maharashtra, India-

[3]. https://www.researchgate.net/publication/360974605_Analysis_Performance_Monitoring_and_Tracking_System_for_Employees

[4]. Tandel, Tejal & Wagal, Sayali & Singh, Nisha & Chaudhari, Rujata & Badgujar, Vishal. (2020). Case Study on an Android App for Inventory Management System with Sales Prediction for Local Shopkeepers in India

[5]. https://www.researchgate.net/publication/340893763_Case_Study_on_an_Android_App_for_Inventory_Management_System_with_Sales_Prediction_for_Local_Shopkeepers_in_India/citation/download