

Problem Statement: Issues in Attendance Management

Traditional attendance systems (manual registers, biometric punch-ins) have several drawbacks:

- ◆ **Manual Errors & Manipulation:** Prone to fake entries (proxy attendance).
 - ◆ **Lack of Real-Time Tracking:** Biometric systems confirm presence at a device but not at the actual worksite.
 - ◆ **Hygiene Concerns:** Post-pandemic, shared touch-based devices pose health risks.
 - ◆ **Integration Issues:** No seamless link with payroll, HR, or leave management systems.
 - ◆ **Compliance & Accountability Challenges:** Lack of accurate data affects payroll processing and legal compliance.
-

2 Solution: AI & GPS-Based Attendance Monitoring System

- ✓ **Real-Time Tracking:** Ensures employees are present at their assigned locations during work hours.
 - ✓ **Live Location Monitoring:** Uses GPS to track field employees and remote workers.
 - ✓ **Facial Recognition / AI Verification:** Prevents proxy attendance.
 - ✓ **Automated Integration with Payroll & Leaves:** Reduces errors in salary calculations.
 - ✓ **Contactless Attendance:** Eliminates health risks from fingerprint scanners.
-

3 Real-Time Tracking: How to Monitor Employee Presence?

- ◆ **GPS Location Tracking:** Ensures employees are at the workplace during working hours.
 - ◆ **Geofencing:** Sets a virtual boundary to check if employees are inside the office.
 - ◆ **WiFi/Bluetooth-Based Check-in:** Auto-detects when employees enter the office network.
 - ◆ **AI-Based Facial Recognition:** Confirms employee identity when marking attendance.
 - ◆ **Time Logs & Shift Monitoring:** Tracks when employees start and finish work.
- ⊘ **Not Required:** The system tracks **presence** at the workplace but does not monitor actual work done.
-

4 Payroll & Leave Management

- ◆ **Payroll System & Attendance Integration**
 - Payroll is affected by attendance and different types of leaves.
 - **Paid leaves** = No salary deduction.
 - **Unpaid leaves** = Salary deducted per day of absence.
 - **Partially paid leaves** = Salary adjusted as per company policy.
-

◆ Types of Leaves & Their Payroll Impact

✅ Paid Leaves (No Salary Deduction)

- **Casual Leave (CL):** Short-term leave for personal reasons.
- **Sick Leave (SL) / Medical Leave (ML):** For health issues (medical proof may be needed).
- **Maternity Leave (ML):** Fully paid leave (up to 26 weeks as per law).
- **Paternity Leave (PL):** Short leave for fathers (depends on company policy).
- **Earned Leave (EL) / Privilege Leave (PL):** Long-term leave that **can be carried forward or encashed**.
- **Festival/National Holidays:** Paid leave for government-declared holidays.

❌ Unpaid Leaves (Salary Deduction Applied)

- **Leave Without Pay (LWP):** Applied when no paid leave balance is left.
- **Extended Sick Leave:** If medical leave exceeds the allowed limit.
- **Study Leave / Sabbatical (Unpaid):** Long break for higher studies, usually unpaid.

⚠️ Partially Paid Leaves (Reduced Salary)

- **Half-Paid Sick Leave:** Some companies provide **50% salary** for extended medical leave.
- **Sabbatical Leave (Partially Paid):** Some organizations provide **stipends or partial pay** for study leave.

◆ Leave Carry Forward & Encashment

- **Carrying Forward: Unused Earned Leave (EL) adds to next year's balance** (e.g., 10 EL per year → 5 unused → next year total = 15 EL).
- **Encashment:** Employees can **convert unused EL into money** based on company policy.

◆ Payroll Processing Based on Attendance & Leaves

1. **Paid Leave Used → No salary deduction.**
2. **Unpaid Leave Used → Salary deducted based on per-day salary.**
3. **Partially Paid Leave Used → Salary adjusted accordingly.**
4. **Attendance Linked to Payroll → Automatic salary calculations based on working days & leave records.**

📊 Expected Benefits of AI & GPS-Based Attendance System

- ✓ **Accurate & Tamper-Proof Attendance** → Eliminates proxy attendance & errors.
- ✓ **Real-Time Tracking & Workforce Monitoring** → Ensures employees are at the correct location.
- ✓ **Automated Payroll Calculation** → Reduces administrative workload.
- ✓ **Seamless Leave & Payroll Integration** → Ensures correct salary processing.
- ✓ **Cost Savings & Compliance** → Reduces fraud, improves efficiency, and ensures legal compliance.