Product Requirements Document (PRD) - VMS-ANTIGRAVITY

1. Introduction

VMS-ANTIGRAVITY is a specialized Enterprise Visitor Management System designed for industrial environments, specifically tailored for **Chandan Steel Ltd**. Its primary purpose is to streamline visitor registration, enhance security through live photo capture, and provide robust access control across multiple plant divisions.

2. User Roles and Access Control

The system enforces strict data segregation based on user roles:

Role	Description	Access Level
Super Admin	Central administrator.	**Full Access**: Can view and manage visitor logs for ALL plants.
Plant Admin	Administrator for a specific division (e.g., Seamless, Forging).	**Restricted Access**: Can only view and manage visitors for their assigned plant.

3. Core Features

3.1 Authentication & Security

- **Secure Login**: Role-based login mechanism using JWT (JSON Web Tokens).
- **Session Management**: Secure session handling to prevent unauthorized access.
- **Credentials**: Pre-configured admin accounts for each plant division.

3.2 Visitor Registration

- **Live Photo Capture**: Integrated webcam support to capture real-time visitor photos (no file uploads allowed for security).
- **Data Entry**: Captures essential details:
    - Name, Phone, Company, Purpose of Visit.
    - Person to Meet, Department.
    - Vehicle Number (if applicable).
    - Material/Assets carried.
- **Dynamic Assets Log**: Allows logging of multiple assets/materials carried by the visitor.

3.3 Dashboard & Management

- **Real-time Overview**: Displays a list of current and past visitors.

- **Filtering**:
    - **By Plant**: Super Admins can filter data by specific plants.
    - **By Date**: Filter logs by specific dates or ranges.
- **Soft Delete**: "Deleted" records are hidden from the UI but retained in the database for audit trails.
- **Clickable Photos**: View high-resolution visitor photos directly from the dashboard.

3.4 Output & Reporting

- **Visitor Pass (Print Slip)**: Generates a standardized, printable visitor slip (195mm x 139mm) containing:
    - Visitor Photo & Details.
    - QR Code / Barcode (implied/future).
    - Terms & Conditions.
- **CSV Export**: automated export of visitor data for offline analysis and reporting.

4. Technical Architecture

4.1 Frontend

- **Framework**: React (built with Vite) for high performance.
- **Language**: TypeScript for type safety.
- **Styling**: Tailwind CSS for a modern, responsive UI.
- **Icons**: Lucide React.
- **Key Libraries**: react-webcam (Photo capture), react-router-dom (Navigation).

4.2 Backend

- **Runtime**: Node.js.
- **Framework**: Express.js (REST API).
- **Database**: PostgreSQL (Relational data storage).
- **ORM**: Raw SQL or lightweight query builder (based on pg driver usage).
- **Process Management**: PM2 for production reliability.
- **Security**: helmet (Headers), bcrypt (Password hashing), node-forge (SSL).

5. Deployment & Infrastructure

- **Local Network Access**: Configured to run over HTTPS on the local network, enabling access from guard tablets/PCs.
- **Self-Hosted**: Designed to run on on-premise servers.
- **SSL/TLS**: Uses self-signed or enterprise certificates for secure camera access (browsers require HTTPS for webcam).

6. Workflow Summary

1. **Check-in**: Guard logs in -> Enters details -> Captures photo -> Submits.
2. **Pass Generation**: System saves data -> Auto-generates Print Slip -> Guard prints pass.
3. **Visit**: Visitor wears pass -> Completes visit.
4. **Admin Review**: Admins check dashboard for logs, export reports, or audit entries.