

Land App

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1. Project Introduction

The **Land App** is a specialized real estate management system designed to track land ownership, location data, and legal documentation. It streamlines the lifecycle of land management including:

- **Onboarding:** Capturing detailed land metrics, seller information, and ownership links.
 - **Documentation:** Managing digital copies of legal papers like Registry, B1, and Khashra.
 - **Visual Tracking:** Integration with Google Maps for precise land location tracking.
 - **Sales Tracking:** Managing the "Sold Out" status and records of purchasing parties.
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2. Folder and File Structure

1. Root Directory(`public_html/ankush_app/land_app`)

- **index.php:** The primary API gateway. It handles all POST requests, routing actions based on the action parameter.
- **qr.php:** The public-facing landing page for individual land records, accessed via QR code scans.
- **qr_gen.php:** Internal utility to generate printable QR code labels for land identification.
- **qrcode.php:** A heavy-duty library for generating QR code modules and images locally.

2. db/ (Database & Core Logic)

- **constant.php:** Defines database credentials (host, user, pass) and the global AUTH_KEY.
 - **connect.php:** Contains the DbConnect class for establishing MySQLi connections.
 - **operations.php:** The engine of the application. Contains the DBOperations class with methods for CRUD operations, encryption/decryption, and SMS integration.
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3. Authentication & API Security

The system uses a two-layer security approach for its mobile and web interfaces:

- **Header-Based Auth:** Every request to index.php must include an Authorization header. This is validated against a static AUTH_KEY defined in constant.php.
 - **Data Encryption:** Sensitive identifiers (like Land IDs) are encrypted using **AES-256-CBC** before being embedded in QR code URLs to prevent unauthorized data crawling.
 - **OTP Verification:** The login process triggers a random 6-digit OTP sent to the user's registered mobile number via a secure SMS gateway.
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4. Land Management (Core Modules)

Land Registration (add_land)

Captures extensive data points including:

- **Physical Attributes:** Area type (Rural/Urban), Boundary type, Borewell status, and Watchman availability.
- **Legal Data:** Khashra number, Rakba (Area), Registration value, and Expense tracking.
- **Utilities:** Society Rice numbers and Electricity Meter details.

Document Management

The system automatically renames and organizes uploaded legal files into specific directories:

- `./land_pics`: Stores physical photos of the property.
- `./document`: Stores legal PDFs/images (Registry, B1, Diversion papers, etc.) with a timestamped prefix to prevent overwriting.

Sales Management (sell)

Marks land as "SOLD OUT" in the database, linking it to a land_sold_tbl entry that records the party name and sale date.

5. QR Code Ecosystem

The application features a built-in QR generation and scanning system:

- **Generation (qr_gen.php):** Generates labels containing a QR code (linked to the land's digital profile) and summary text (LID, Owner Name, Address).

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- **Public Profile (qr.php):** When scanned, it decrypts the ID and displays a mobile-optimized view of the land details, including a direct button to "Open Google Map".
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6. Reporting & Data Analysis

- **ownerLandReport:** Distinguishes between land owned by individuals vs. companies based on naming conventions in the "Father's Name" field.
 - **ownerLandAreaReport:** Aggregates land holdings by geographic area (extracted from address strings) and groups unique owners per area.
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7. Communication Suite (SMS)

- **File:** db/operations.php
 - **Provider:** Integrated with pgapi.vispl.in using DLT-compliant templates.
 - **Triggers:** Primarily used for Login OTPs ("Dear [Name], [OTP] is the OTP for your login...").
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8. Database Architecture Overview

S. No.	Table Name	Description
1	users	Stores administrative credentials and contact info for 2FA.
2	owner_tbl	Master registry for land owners, including their father's names for legal link tracking.
3	land_tbl	The core inventory table storing physical attributes, Khashra, and sales status.
4	land_document_tbl	Stores file paths for permanent legal papers like Registry, B1, and Diversion papers.
5	land_photo_tbl	A secondary table linking multiple site photographs to a single land record.
6	land_sold_tbl	Logs transaction details, including party name and date when land is sold.
7	yearly_docs_tbl	Tracks recurring annual documents such as tax receipts and diversion challans.
8	otp_tbl	Temporary storage for active login OTPs and their associated mobile numbers.
9	update_tbl	Audit log for tracking application updates and system changes.
10	land_document_info_view	A database view used for complex reporting and data aggregation.