

Group – HighFive

Group Members

Name	Roll No.
Lubesh Kamar Sharma	22CS30065
Karan Kumar Sethi	22CS30034
Savalapurapu Roshan	22CS10068
Gopal Ji	22CS10026
Aditya Jhahhria	22CS30006

Table Schema for the implemented database

Users(user_id, password_hash, email, user_type, status, created_at)

Address(address_id, block_name, district_name, state_name, pin_code, country)

Panchayats(panchayat_id, panchayat_name, establishment_date, area_sq_km, contact_email, contact_phone, address_id)

- FK: address_id → Address(address_id)

Citizens(citizen_id, user_id, panchayat_id, first_name, last_name, gender, dob, educational_qualification, occupation, annual_income, tax_due_amount, marital_status, phone_number, email)

- FK: user_id → Users(user_id)

- FK: panchayat_id → Panchayats(panchayat_id)

Households(household_id, citizen_id, details)

- FK: citizen_id → Citizens(citizen_id)

- Composite PK: (household_id, citizen_id)

Employees(employee_id, user_id, panchayat_id, citizen_id, designation, join_date, end_date, department, employment_type, salary)

- FK: user_id → Users(user_id)

- FK: panchayat_id → Panchayats(panchayat_id)

- FK: citizen_id → Citizens(citizen_id)

Certificate(certificate_id, citizen_id, application_date, status, type, description)

- FK: citizen_id → Citizens(citizen_id)

Schema_Type(schema_id, type, description)

Citizen_Welfare_Schema(citizen_id, schema_id, joining_date)

- FK: citizen_id → Citizens(citizen_id)

- FK: schema_id → Schema_Type(schema_id)

Tax_Payments(tax_payment_id, citizen_id, amount, date_of_payment, mode_of_payment)

- FK: citizen_id → Citizens(citizen_id)

Citizen_Lands(land_id, citizen_id, area, type, crop_type)

- FK: citizen_id → Citizens(citizen_id)

Assets(asset_id, type, location, installation_date, panchayat_id)

- FK: panchayat_id → Panchayats(panchayat_id)

Service(service_id, type, description)

Service_Request(request_id, citizen_id, service_id, request_date, description, priority, status)

- FK: citizen_id → Citizens(citizen_id)

- FK: service_id → Service(service_id)

Announcements(announcement_id, heading, detail, date)

Budget_Expense(expense_id, panchayat_id, amount, expense_date, description)

- FK: panchayat_id → Panchayats(panchayat_id)

Budget_Revenue(revenue_id, panchayat_id, amount, revenue_date, description)

- FK: panchayat_id → Panchayats(panchayat_id)

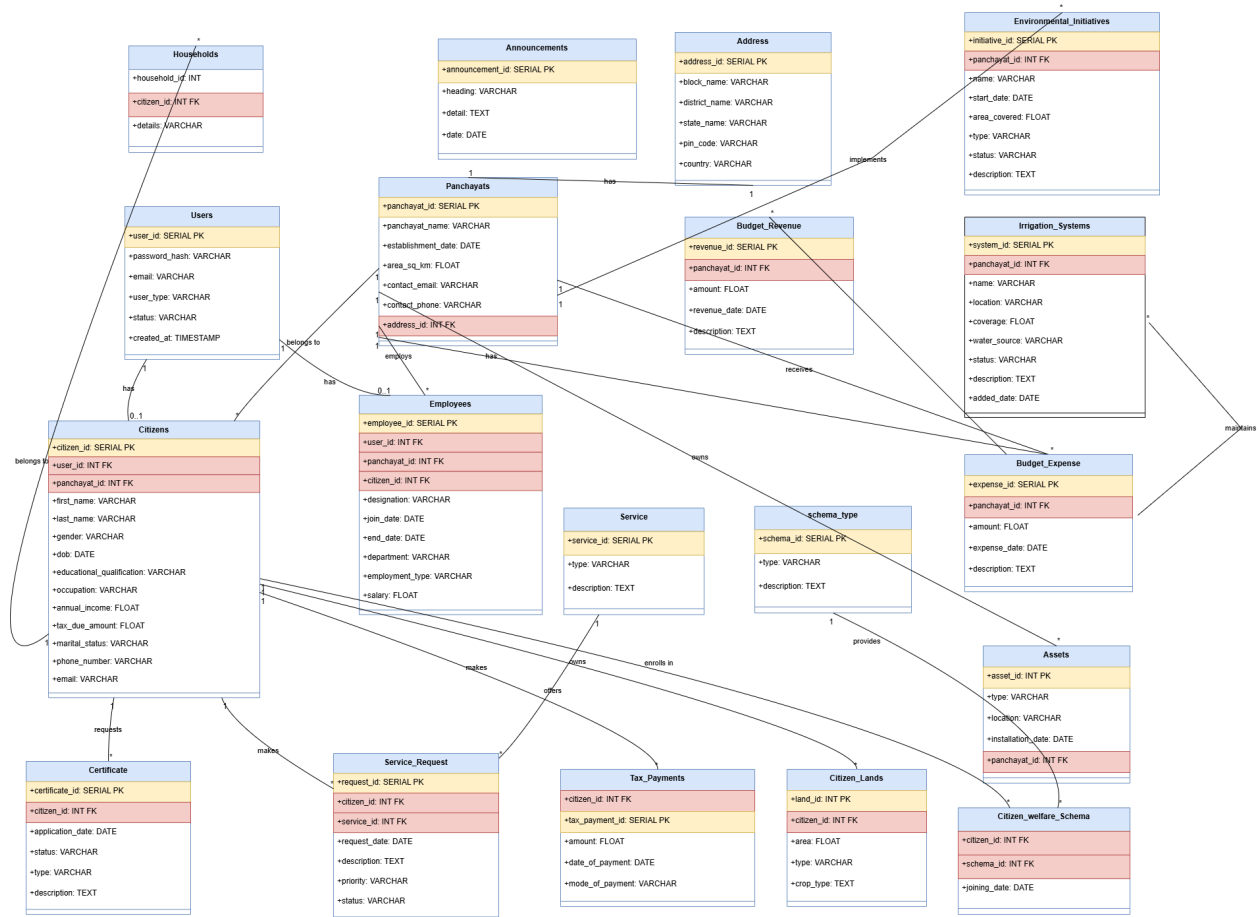
Environmental_Initiatives(initiative_id, panchayat_id, name, start_date, area_covered, type, status, description)

- FK: panchayat_id → Panchayats(panchayat_id)

Irrigation_Systems(initiative_id, panchayat_id, name, location, coverage, water_source, status, description, added_date)

- FK: panchayat_id → Panchayats(panchayat_id)

ER Diagram:-



Implemented Functionalities Report

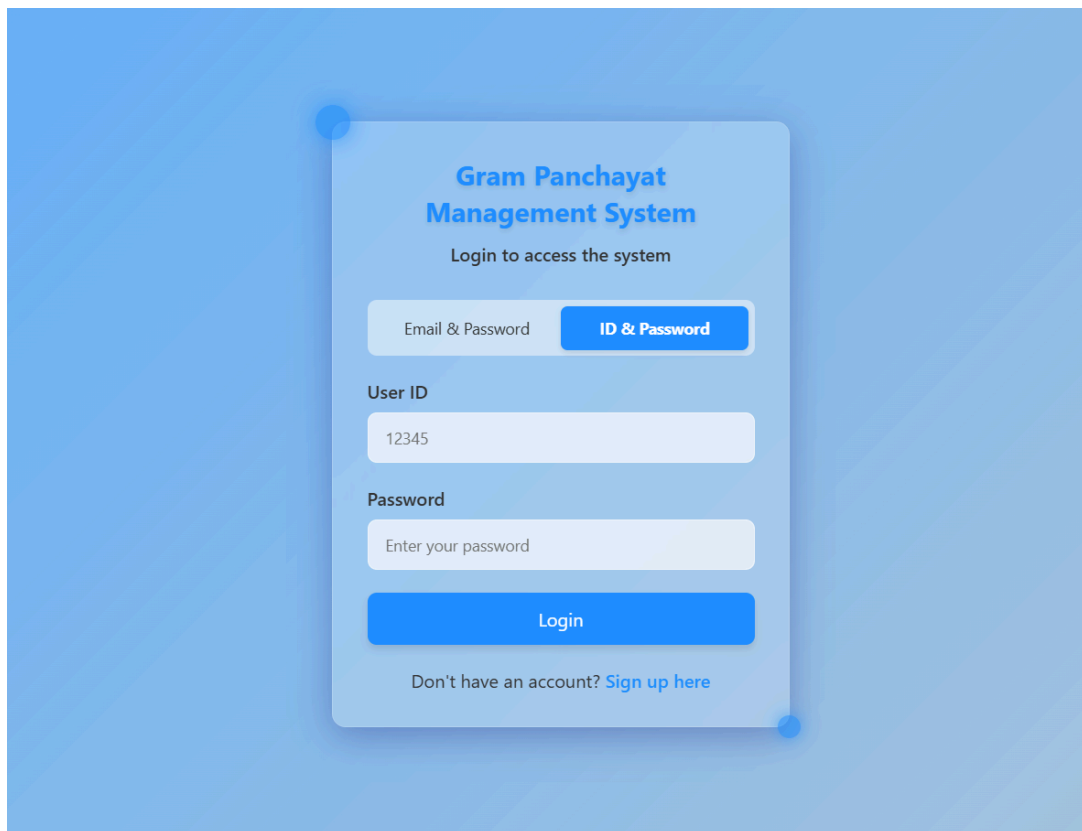
This report provides a comprehensive overview of the functionalities implemented in the Gram Panchayat Management System, based on the database schema and entity-relationship diagrams.

a. Landing page

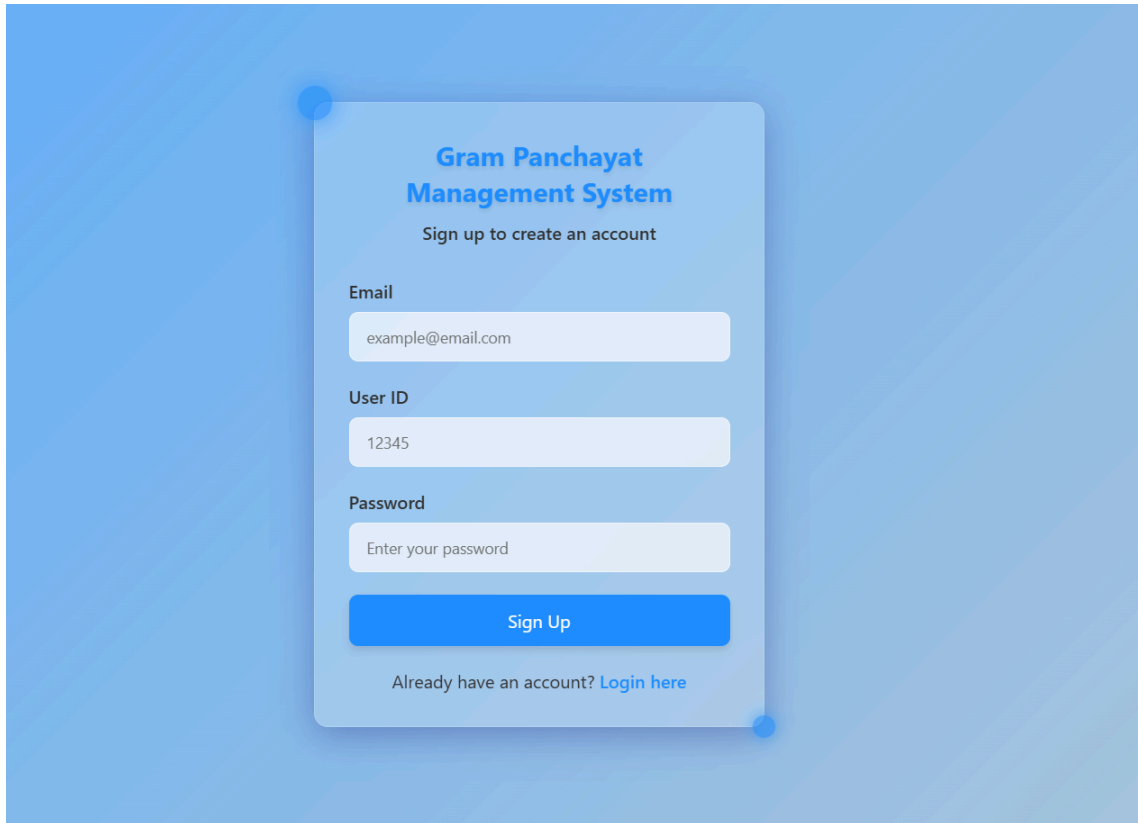
1. Landing page



2. Login Page for all users



3. Sign up Page for the citizens and panchayat members (matches their Id's in citizen table)

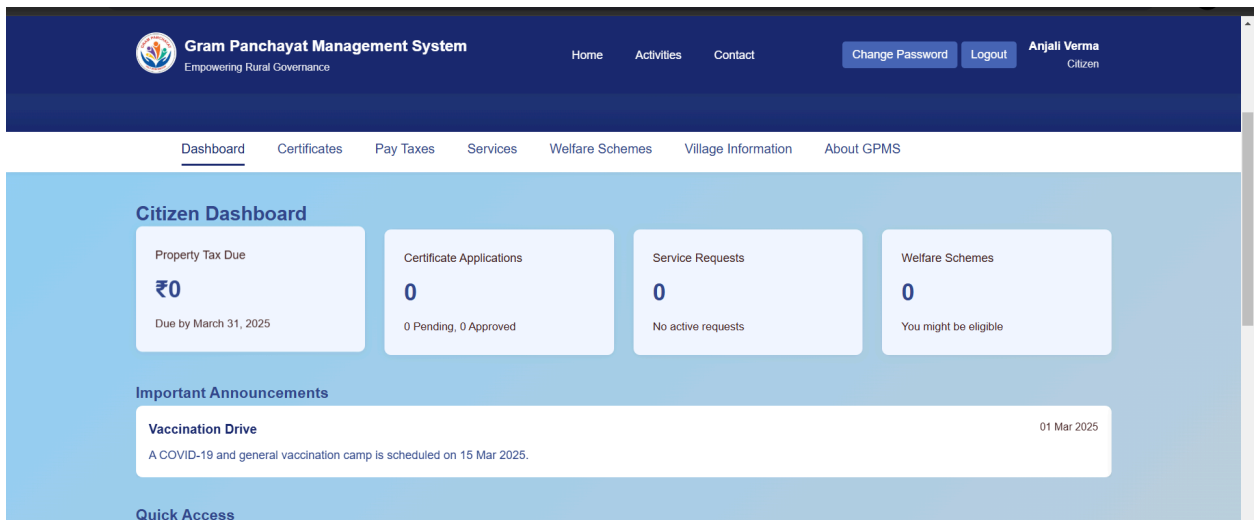


The image shows a sign-up page for the Gram Panchayat Management System. The page has a blue background with a white card in the center. The card contains the following elements:

- Gram Panchayat Management System** (Title)
- Sign up to create an account** (Subtitle)
- Email** (Label):
- User ID** (Label):
- Password** (Label):
- Sign Up** (Button)
- Already have an account? [Login here](#)** (Text)

Citizen-user

1. Citizen dashboard contains important announcements and information counter for schemes and other services



The image shows the Citizen dashboard of the Gram Panchayat Management System. The dashboard has a dark blue header with the following elements:

- Gram Panchayat Management System** (Logo and Title)
- Empowering Rural Governance** (Subtitle)
- Home** (Link)
- Activities** (Link)
- Contact** (Link)
- Change Password** (Button)
- Logout** (Button)
- Anjali Verma** (User Name)
- Citizen** (Role)

The dashboard has a light blue background with the following sections:

- Dashboard** (Link)
- Certificates** (Link)
- Pay Taxes** (Link)
- Services** (Link)
- Welfare Schemes** (Link)
- Village Information** (Link)
- About GPMS** (Link)

Citizen Dashboard


- Property Tax Due**: ₹0 (Due by March 31, 2025)
- Certificate Applications**: 0 (0 Pending, 0 Approved)
- Service Requests**: 0 (No active requests)
- Welfare Schemes**: 0 (You might be eligible)

Important Announcements

- Vaccination Drive**: A COVID-19 and general vaccination camp is scheduled on 15 Mar 2025. (01 Mar 2025)

Quick Access

2. Certificates request page for citizen


**Gram Panchayat Management System**
Empowering Rural Governance

[Home](#) [Activities](#) [Contact](#) [Change Password](#) [Logout](#) **Anjali Verma**
Citizen

[Dashboard](#) [Certificates](#) [Pay Taxes](#) [Services](#) [Welfare Schemes](#) [Village Information](#) [About GPMS](#)

Certificate Applications

You can apply for various certificates issued by the Gram Panchayat. Processing time varies based on the certificate type.



Birth Certificate
Official document certifying the date and place of birth

Select

3. Reviewing Tax information for the citizen

[Dashboard](#) [Certificates](#) [Pay Taxes](#) [Services](#) [Welfare Schemes](#) [Village Information](#) [About GPMS](#)

Pay Taxes & Bills

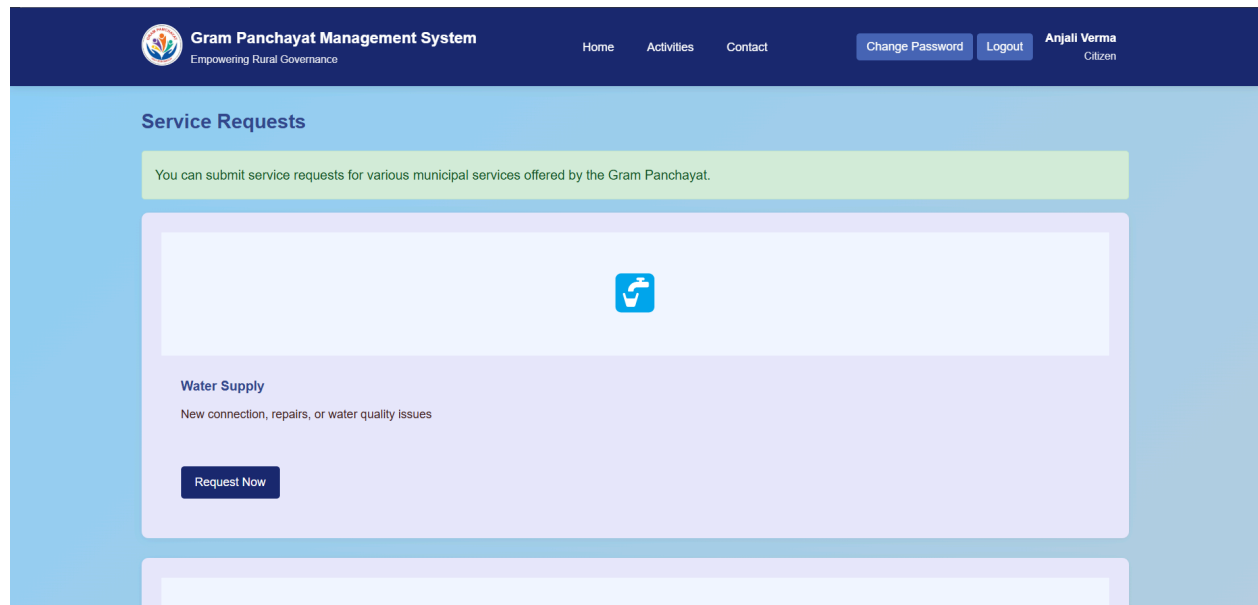
You have no pending tax dues at this time. Thank you for being a responsible citizen!

Property Tax
₹0
Due by March 31, 2025
No Payment Due

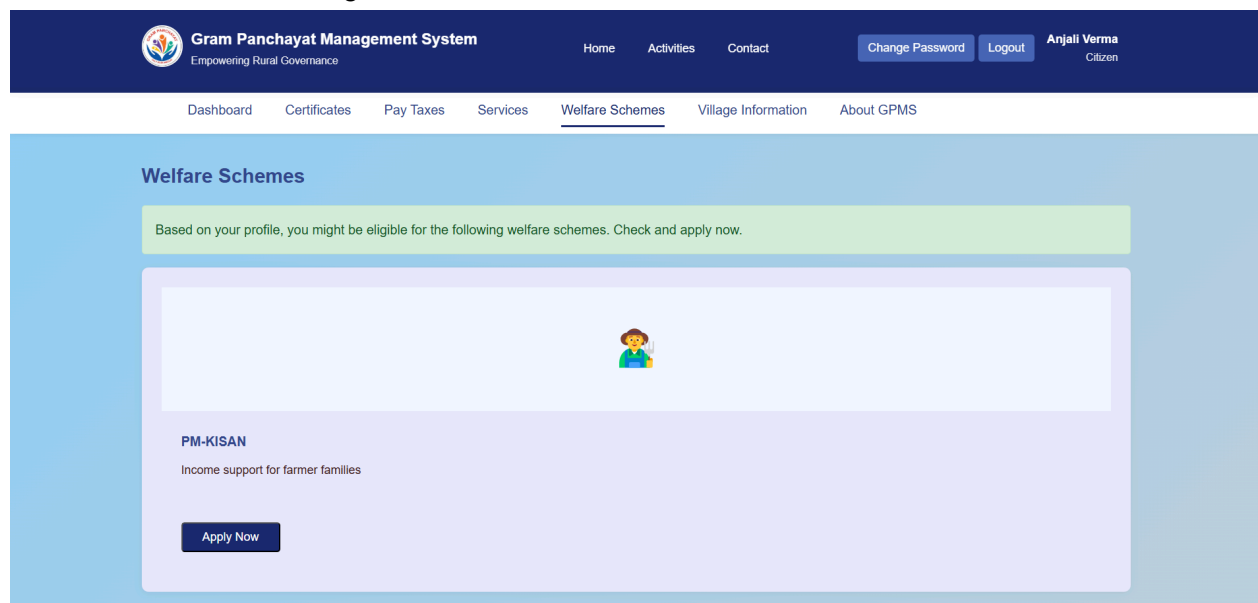
Payment History

Receipt No.	Payment Date	Payment Mode	Action
No payment history available			


4. Citizen can access services here Like water supply, electric supply etc.



5. Citizen can access active government welfare schemes here



6. Also citizen can get information about their village



Gram Panchayat Management System
Empowering Rural Governance

[Home](#)[Activities](#)[Contact](#)

[Change Password](#)[Logout](#)

Anjali Verma
Citizen

panchayat activities

Search for activities, dates, or status...

Search

Dashboard

Certificates

Pay Taxes

Services

Welfare Schemes

Village Information

About GPMS

Village Information

This section provides detailed information about your Gram Panchayat. Citizens can view all village-related details below but cannot modify any data.


Gram Panchayat Vadgaon
Established on: 10 Nov 2001
Area: 32.5 sq km
Contact Email: vadgaon.gp@example.com
Contact Phone: 7654321098
Address: Shahuwadi Block, Kolhapur, Maharashtra - 416213, India

Panchayat Members

Name	Designation	Department	Email
Priya Sharma	Officer	Budget	priya2002@gmail.com

Patwari (panchayat employee)

1. Dashboard for the panchayat employees



Gram Panchayat Management System
Land Records & Environment Management

[Home](#)[Dashboard](#)[Settings](#)

Manish Kumar
Officer

Logout

Employee ID: 1 • Department: Patwari

Land Management Dashboard

Dashboard

Records

Land Overview

Citizen Lands

Census Data

Environmental Management

Environment Initiatives


Irrigation Systems

Administration

Announcements

Land Records Dashboard

Refresh Data




8.2

Agricultural Area (acres)




2.8

Residential Area (acres)



0

Commercial Area (acres)




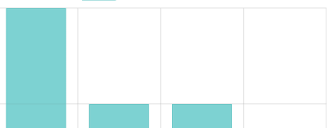
3

Registered Land Owners

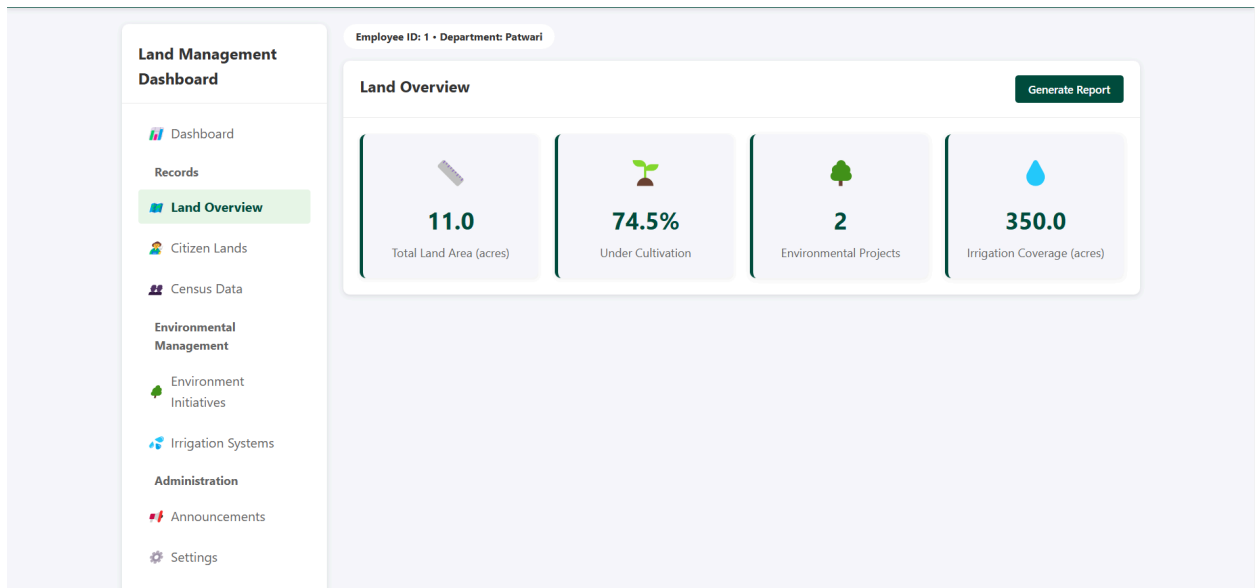
Land Distribution

Total Land Distribution (All Panchayats)



Environmental Projects

2. Land overview under the panchayat

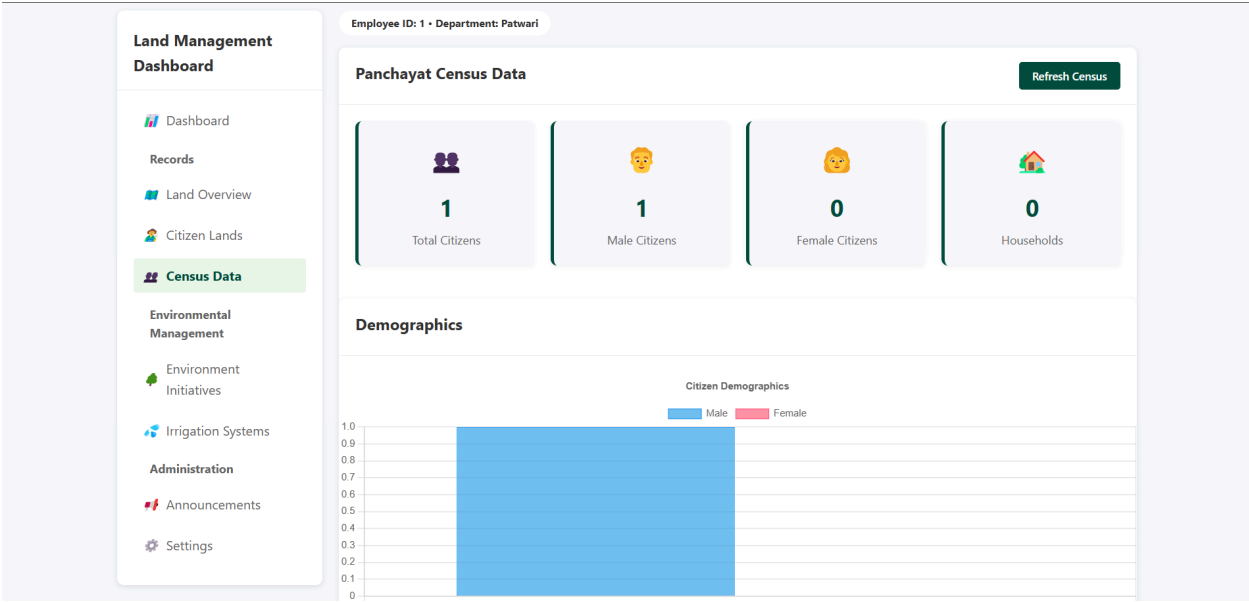


3. Citizen Lands details in the panchayat

The screenshot shows the 'Citizen Land Records' section of the 'Land Management Dashboard'. The dashboard is for 'Employee ID: 1 • Department: Patwari'. The left sidebar is the same as in the previous screenshot, with 'Citizen Lands' selected. The main content area displays a table of land records with columns: Land ID, Citizen ID, Owner Name, Area (acres), Type, Crop Type, and Actions. There are three records listed. Each record has 'Edit' and 'Delete' buttons in the Actions column. An 'Add New Land' button is located in the top right corner of the records section.

Land ID	Citizen ID	Owner Name	Area (acres)	Type	Crop Type	Actions
101	1	Manish Kumar	4.5	Agricultural	Wheat, Rice	<button>Edit</button> <button>Delete</button>
102	2	Rahul Kumar	2.8	Residential	Not Specified	<button>Edit</button> <button>Delete</button>
103	3	Priya Sharma	3.7	Agricultural	Cotton, Maize	<button>Edit</button> <button>Delete</button>

4. Data of the population of panchayat represented visually



5. Environmental Initiatives taken by the panchayat can be represented here

Employee ID: 1 • Department: Patwari

Land Management Dashboard

- Dashboard
- Records
- Land Overview
- Citizen Lands
- Census Data
- Environmental Management
 - Environment Initiatives**
- Irrigation Systems
- Administration
 - Announcements
- Settings

Environmental Initiatives

Add Initiative

Initiative ID	Name	Start Date	Area Covered	Type	Status	Actions
1	Solar Panel Installation	2025-03-10	0.5	Renewable Energy	Ongoing	Edit Delete
2	Waste Recycling Initiative	2025-06-01	0.0	Waste Management	Planning	Edit Delete

6. Irrigation Systems status can be managed here

Land Management Dashboard

Dashboard

Records

Land Overview

Citizen Lands

Census Data

Environmental Management

Environment Initiatives

Irrigation Systems

Administration

Announcements

Settings

Employee ID: 1 • Department: Patwari

Irrigation Systems

Add System

System ID	Name	Location	Coverage	Water Source	Status	Actions
1	Drip Irrigation System	North Field	100.0	Borewell	Operational	<div>Edit</div> <div>Delete</div>
2	Canal Renovation	East Zone	250.0	River	In Progress	<div>Edit</div> <div>Delete</div>

7. Employees can create, edit and delete announcements

Land Management Dashboard

Dashboard

Records

Land Overview

Citizen Lands

Census Data

Environmental Management

Environment Initiatives

Irrigation Systems

Administration

Announcements

Settings

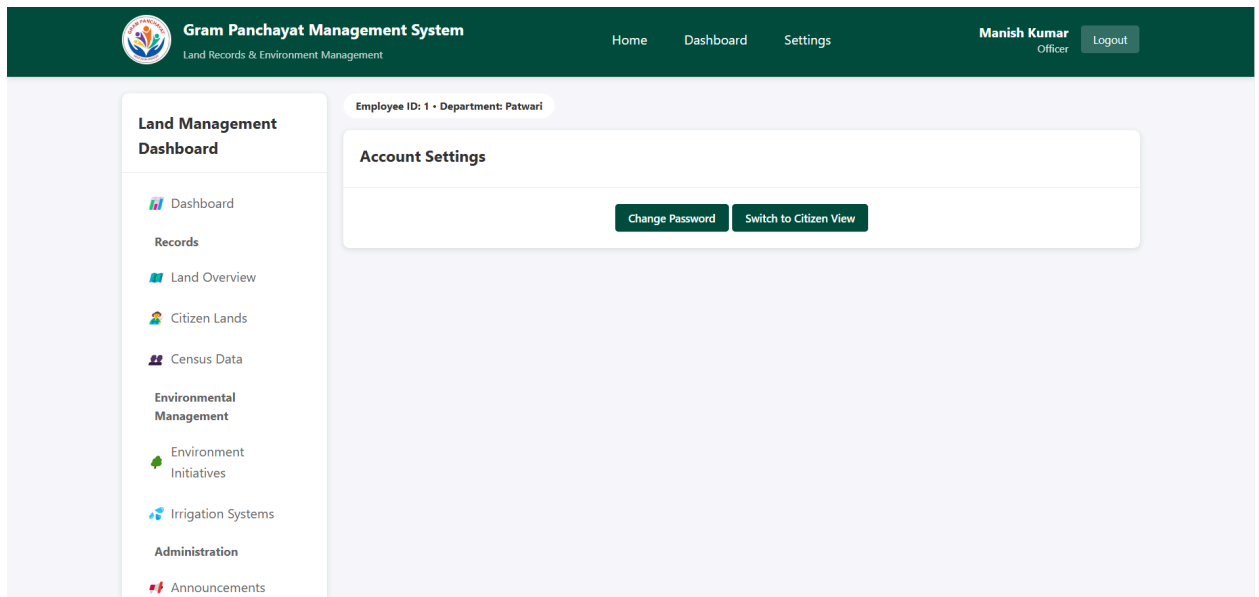
Employee ID: 1 • Department: Patwari

Announcements

Add Announcement

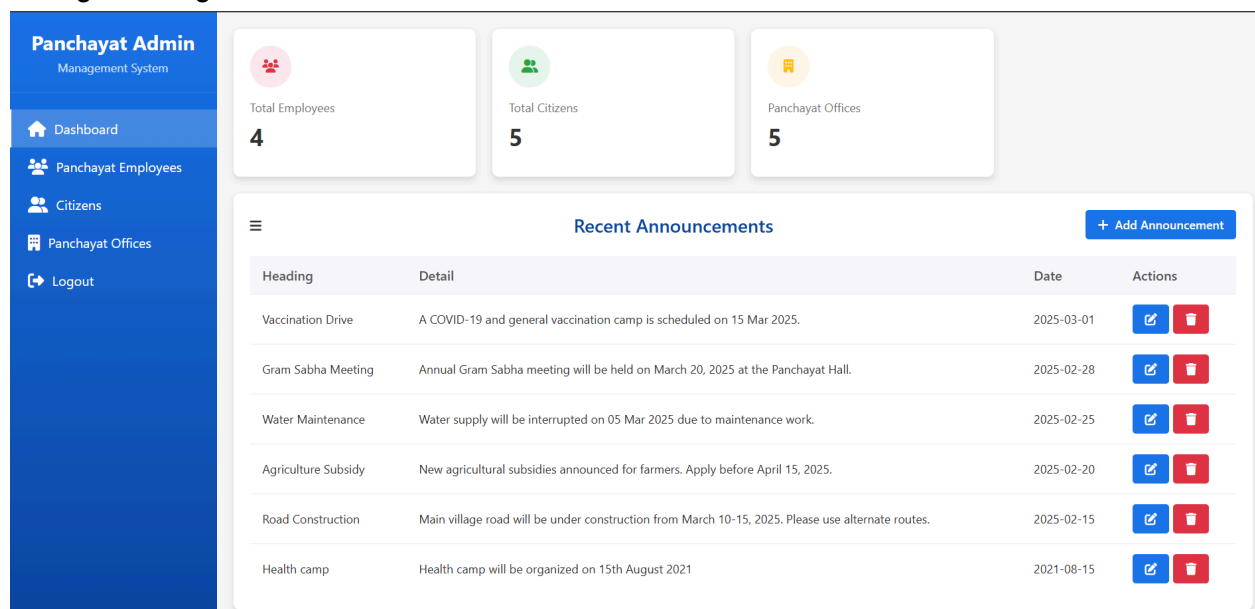
Announcement ID	Heading	Detail	Date	Actions
2	Vaccination Drive	A COVID-19 and general vaccination camp is scheduled on 15 Mar 2025.	2025-03-01	<div>Edit</div> <div>Delete</div>
4	Gram Sabha Meeting	Annual Gram Sabha meeting will be held on March 20, 2025 at the Panchayat Hall.	2025-02-28	<div>Edit</div> <div>Delete</div>
3	Water Maintenance	Water supply will be interrupted on 05 Mar 2025 due to maintenance work.	2025-02-25	<div>Edit</div> <div>Delete</div>
5	Agriculture Subsidy	New agricultural subsidies announced for farmers. Apply before April 15, 2025.	2025-02-20	<div>Edit</div> <div>Delete</div>
6	Road Construction	Main village road will be under construction from March 10-15, 2025. Please use alternate routes.	2025-02-15	<div>Edit</div> <div>Delete</div>
1	Health camp	Health camp will be organized on 15th August 2021	2021-08-15	<div>Edit</div> <div>Delete</div>

8. Here the panchayat employees can access their citizen account by switching here



Admin users

1. Admin Dashboard containing count of total citizens, employees and offices, announcements editing, deleting and creation abilities



2. Admin have the ability to edit, delete and create new employees accounts

Panchayat Admin
Management System

Dashboard

Panchayat Employees

Citizens

Panchayat Offices

Logout

Panchayat Employees

Search by name...

+ Add Employee

Employee ID	Name	Position	Type	Department	Status	Salary	Panchayat	Actions
1	Manish Kumar	Officer	Contract	Patwari	Inactive	20000.0	Gram Panchayat Dongare	<div><div></div><div></div><div></div></div>
3	Priya Sharma	Officer	Permanent	Budget	Inactive	30000.0	Gram Panchayat Vadgaon	<div><div></div><div></div><div></div></div>
2	Rahul Kumar	Officer	Contract	Certificate	Inactive	25000.0	Gram Panchayat Kalamb	<div><div></div><div></div><div></div></div>
4	Rohit Singh	Officer	Contract	Tax	Inactive	25000.0	Gram Panchayat Kalamb	<div><div></div><div></div><div></div></div>

3. Admin have the ability to edit, delete and create new citizens accounts

Panchayat Admin
Management System

Dashboard

Panchayat Employees

Citizens

Panchayat Offices

Logout

Registered Citizens

Search by name...

+ Add Citizen

Citizen ID	Name	Age	Email	Status	Actions
4	Anjali Verma	23.0	anjali2001@gmail.com	Registered	<div><div></div><div></div><div></div></div>
1	Manish Kumar	21.0	manish2003@gmail.com	Registered	<div><div></div><div></div><div></div></div>
3	Priya Sharma	22.0	priya2002@gmail.com	Registered	<div><div></div><div></div><div></div></div>
2	Rahul Kumar	21.0	rahul2004@gmail.com	Registered	<div><div></div><div></div><div></div></div>
5	Rohit Singh	24.0	rohit2000@gmail.com	Registered	<div><div></div><div></div><div></div></div>

4. Here the details on panchayats can be edited and panchayats can be joined as new.

Panchayat Admin
Management System

Dashboard

Panchayat Employees

Citizens

Panchayat Offices

Logout

Panchayat Offices

Search by name...

+ Add Office

Office ID	Office Name	Contact Email	Contact Phone	Area (sq km)	Establishment Date	Actions
1	Gram Panchayat Dongare	dongare.gp@example.com	9876543210	25.7	2000-03-15	<div><div></div><div></div><div></div></div>
2	Gram Panchayat Kalamb	kalamb.panchayat@example.com	8765432109	18.3	1998-07-22	<div><div></div><div></div><div></div></div>
5	Gram Panchayat Khed	khed.gp@example.com	5432109876	21.4	2002-09-30	<div><div></div><div></div><div></div></div>
4	Gram Panchayat Shirol	shirol.panchayat@example.com	6543210987	27.8	1999-05-08	<div><div></div><div></div><div></div></div>
3	Gram Panchayat Vadgaon	vadgaon.gp@example.com	7654321098	32.5	2001-11-10	<div><div></div><div></div><div></div></div>

Government officials

1. Here Government officials can see all the panchayats possible and can access any one of their details directly from here

Gram Panchayat Management System

Government DashboardAdmin User

Government Monitoring Dashboard

Monitor and track all Gram Panchayat offices and population

Total Panchayats

5

Total Population

5

Panchayat Offices Overview

Panchayat Name	Population	Establishment Date	Area (sq. km)	Contact Email	Contact Phone	Actions
Gram Panchayat Dongare	1	2000-03-15	25.7	dongare.gp@example.com	9876543210	
Gram Panchayat Kalamb	3	1998-07-22	18.3	kalamb.panchayat@example.com	8765432109	
Gram Panchayat Vadgaon	1	2001-11-10	32.5	vadgaon.gp@example.com	7654321098	
Gram Panchayat Shirol	0	1999-05-08	27.8	shirol.panchayat@example.com	6543210987	
Gram Panchayat Khed	0	2002-09-30	21.4	khed.gp@example.com	5432109876	

2. All of the useful information on gram panchayats can directly accessed from here by government officials.

Gram Panchayat Management System

Government DashboardAdmin User

Gram Panchayat Dongare Details

Complete information about the panchayat, employees, and citizens

Panchayat Information

Panchayat Name: Gram Panchayat Dongare	Contact Email: dongare.gp@example.com
Establishment Date: 2000-03-15	Contact Phone: 9876543210
Area: 25.7 sq. km	Total Citizens: 1

Panchayat Employees

Name	Designation
Manish Kumar	Officer

Registered Citizens (1)

Frontend Tools and Technologies

Languages

- HTML5 - Structure
- CSS3 - Styling
- JavaScript (ES6+) - Client-side functionality

Backend Tools and Technologies

Core Language

- Python 3.9+

Web Framework

- Flask and its extensions:
 - Flask-RESTful
 - Flask-SQLAlchemy
 - Flask-Migrate
 - Flask-JWT-Extended
 - Flask-CORS

Key Python Libraries

- psycopg2 - PostgreSQL adapter
- SQLAlchemy - ORM
- hashlib - Security
- datetime - Time handling
- Many more utility libraries

Database

- PostgreSQL 14+
- psql - CLI interface