

Personal Data Gathering and Managing System

Software Requirements Specification
Version 4.0
System Analysis & Design - IS2106

GROUP 39

Team – Phoenix Flyers

April 25, 2024

DEPARTMENT OF COMPUTING & INFORMATION
SYSTEMS
FACULTY OF COMPUTING
SABARAGAMUWA UNIVERSITY OF SRI LANKA

Project Name: VillageVision

Team Name: Phoenix Flyers

Team Members

Index number	Name with Initials	Email
21CIS0044	M. G. A. Upeksha	mgaupeksha@std.foc.sab.ac.lk
21CIS0069	P. Y. B. Peiris	pybpeiris@std.foc.sab.ac.lk
21CIS0122	N. M. Rubasinghe	nmrubasinghe@std.foc.sab.ac.lk

Table of Content

1. Introduction.....	1
1.1 Purpose.....	1
1.2 Project scope	1
1.3 Intended audience.....	2
1.4 Problems in current situations	2
1.5 Advantages of new system	2
2. Depth of Analysis	3
2.1. Use of Appropriate Analysis Tools and Techniques.....	3
2.1.1 Data flow diagrams (DFD).....	3
2.1.2 Requirement gathering sessions with stakeholders	4
2.1.3 Interviews and surveys	4
2.2 SRS (Software Requirements Specification) with DB Diagrams	4
2.3 Use Cases	6
2.4 ER Diagrams	6
2.5. Schema Diagram	8
3 Identification of Key System Features.....	9
4 Functional Requirements	9
5 Non-functional Requirements	10
6 Tools and Technologies expected to be used.....	10
7 UI/UX Design	11
7.1 Home Page	11
7.2 About Us Page.....	11
7.3 Village Details.....	12
7.3.1 See Village Details	12
.....	12
7.3.2 Finds Upcoming Events Page.....	13
7.3.3 Finds officers for help Page.....	13
7.4 Login Page.....	14
7.5 Sign in Page.....	14
7.5 Living Home Details Form	15
7.6 Personal Detail Form.....	16
16	
7.7 Lands Detail Form.....	17
7.8 Other Buildings Form.....	18
18	
7.9 Village Officer's Tasks	19
7.9.1 Village Common Property Details Form.....	19
19	
7.9.2 Village Officers Details Form	19
7.9.3 Grama Division Details Form	20

List of Figure

Figure 1 : Data flow Diagram (DFD)3

Figure 2 : Database Diagram5

Figure 3 : Use cases6

Figure 4 : Entity-Relationship (ER) diagram7

Figure 5 : Schema Mapping.....8

1. Introduction

A groundbreaking personal data gathering and management system tailored for Grama Niladhari officers. It has regular updates and works as a user-friendly interface. VillageVision ensures the maintenance of accurate community records. Individuals have the ability to access and verify their own data stored in the central database. They also being able to report any discrepancies or submit new details through an online application. Grama Niladhari officers meticulously review and validate these submissions. System updating the main database with correct information. VillageVision stands as a vital tool in promoting transparency and efficiency in data management. The aim is to ultimately benefit every member of the community.

1.1 Purpose

- To enable village officials to maintain regularly updated and accurate community records.
- Provide individuals with access to their own stored data within the main database.
- Facilitate the reporting of any mistakes or submission of new details through an online application.
- Empower Village Officials to verify and validate submitted information for accuracy.
- Make sure that accurate data is quickly added to the primary database, improving the overall accuracy of the data.
- Promote accountability and openness in data management procedures.
- function as a useful instrument for effective and efficient collective record-keeping, which is advantageous to all community members.

1.2 Project scope

We hope to develop a personal data collection and management system specially for village officials and community members. And also we will implement that system through our village vision project. Simply, that is our project scope. Our aim is to create a user friendly platform to manage and update community records without any inconvenience and more accurately and reliability than manual way. It provides the best opportunities for community members. They are able to enter new information or updated information and allow access to their own stored data in a central database. And they allow you to report any inaccurate information. The project scope also includes the integration of robust validation processes to verify the accuracy of submitted data and the seamless updating of the main database with correct information. The project may involve training sessions and ongoing technical support to ensure the effective maintenance of the system.

1.3 Intended audience

- Grama Niladhari officers - They are responsible for maintaining community records.
- Villagers - They can view their details and let Gramaniladhari know if there are any problems, changes or new information.
- Government authorities or agencies - They are involved in community data management and governance processes.
- Technicians and developers - They are involved in the system's implementation and maintenance process.

1.4 Problems in current situations

- Lack of real-time communication channels results in delays in updating data when changes occur.
- The method of Contacting villagers via mobile phones is not a suitable method to collect data efficiently.
- It is a very risky way to use paper documents to store community information because details may be lost.
- Difficulty in maintaining the accuracy of community records due to manual data entry.
- Limited accessibility for villagers to update their own information.
- Manually inputting, updating and maintaining data takes too much time.
- Differences in data quality arising from varying levels of literacy and comprehension among villagers filling out forms.
- It is very difficult to coordinate efforts among multiple village officials in different areas.
- Better decision-making at the community level is difficult without a central data management system.

1.5 Advantages of new system

- Village officials facilitate direct personal relationships and community participation between officials and villagers.
- Flexibility in data collection methods allows for adaptation to the specific needs and circumstances of each household.
- Lower initial cost and minimal technological infrastructure
- It involves hiring local workers to assist with data collection. It will also create new job opportunities for the society.
- Improved data accuracy through direct observation and verification by Grama Niladhari officers.

2. Depth of Analysis

Our personal data gathering and management system for Grama Niladhari officers, involved a diverse range of techniques and tools to identify key system features.

During the analysis phase, various techniques and tools were utilized to gain insights into the system's requirements and constraints.

These included stakeholder interviews, requirement gathering sessions and the use of modeling tools such as data flow diagrams (DFD).

Additionally The analysis process involved a thorough review of existing data management procedures and challenges faced by Grama Niladhari officers and community members.

2.1. Use of Appropriate Analysis Tools and Techniques

Various analysis tools and techniques were employed to comprehensively understand the project requirements and constraints. These tools included in our VillageVision Project.

2.1.1 Data flow diagrams (DFD)

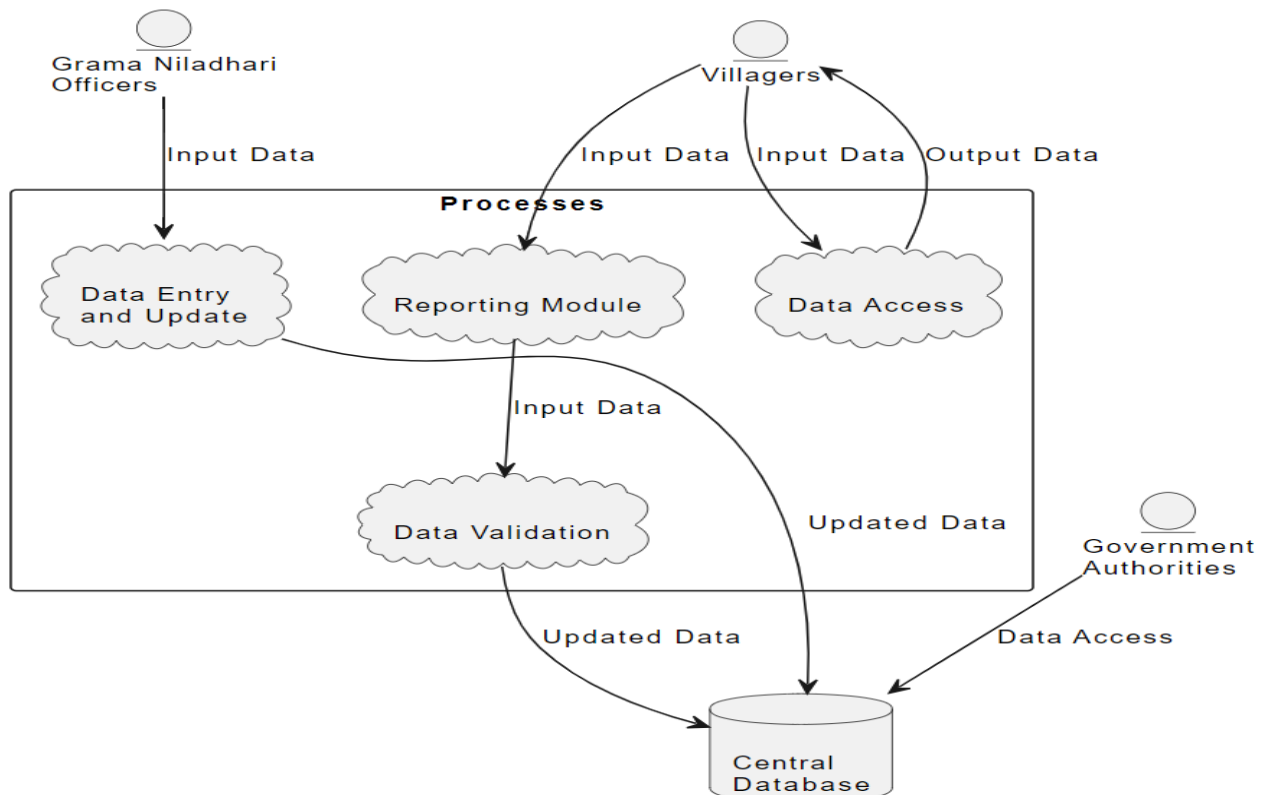


Figure 1 : Data flow Diagram (DFD)

2.1.2 Requirement gathering sessions with stakeholders

Requirement gathering sessions involve engaging with stakeholders. The following people can be taken as stakeholders

- Grama Niladhari officers
- Villagers
- Government authorities

By this understand their needs, expectations and constraints.

Stakeholders can provide insights into system requirements, functionalities and user roles.

2.1.3 Interviews and surveys

Interviews and surveys helping us identify user needs, pain points and preferences which inform the system design and development process.

2.2 SRS (Software Requirements Specification) with DB Diagrams

The Software Requirements Specification (SRS) document was developed to provide a detailed description of the our system requirements.

It included database diagrams illustrating the structure and relationships of the database entities.

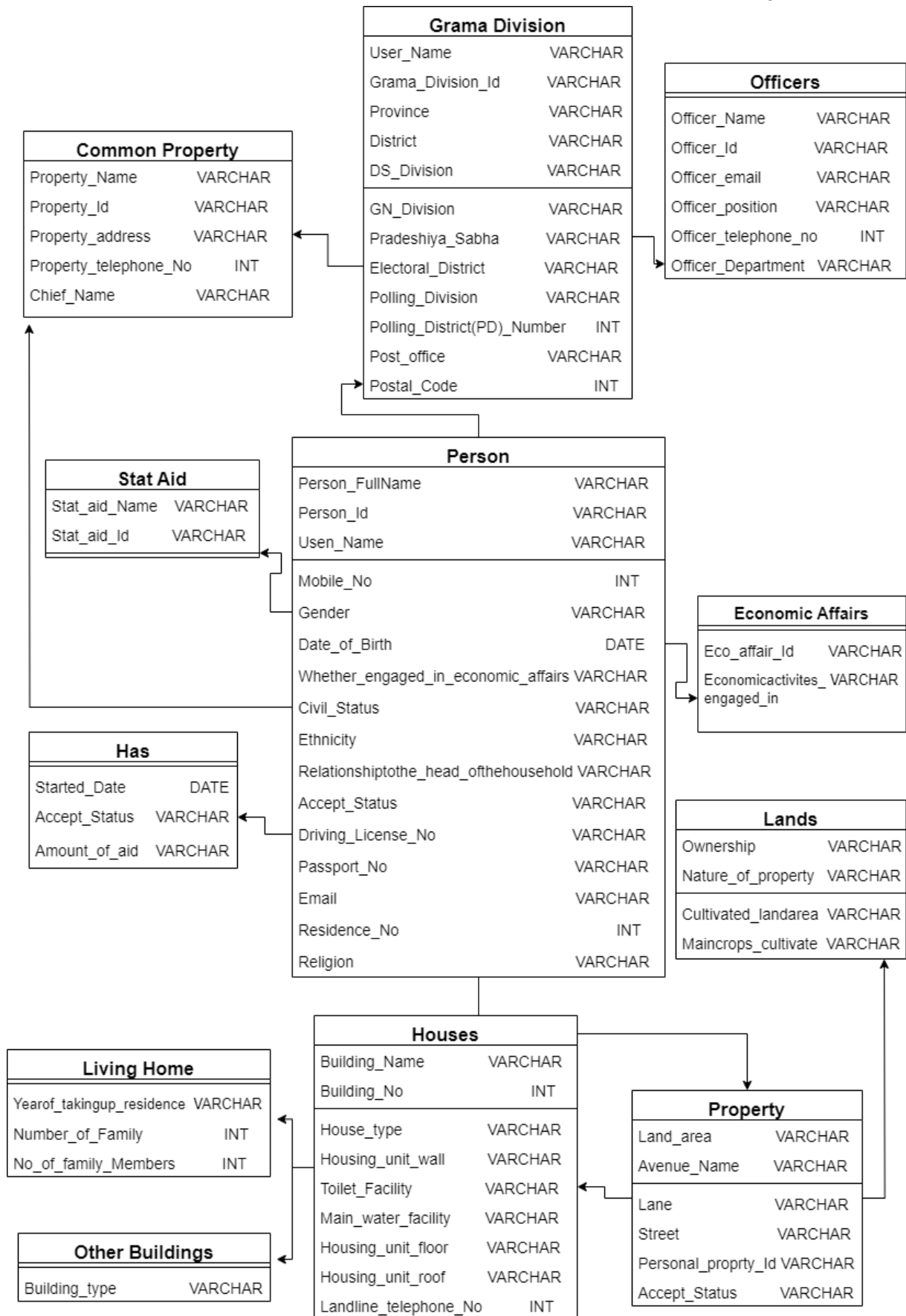


Figure 2 : Database Diagram

2.3 Use Cases

Use cases were utilized to define interactions between the system and its users.

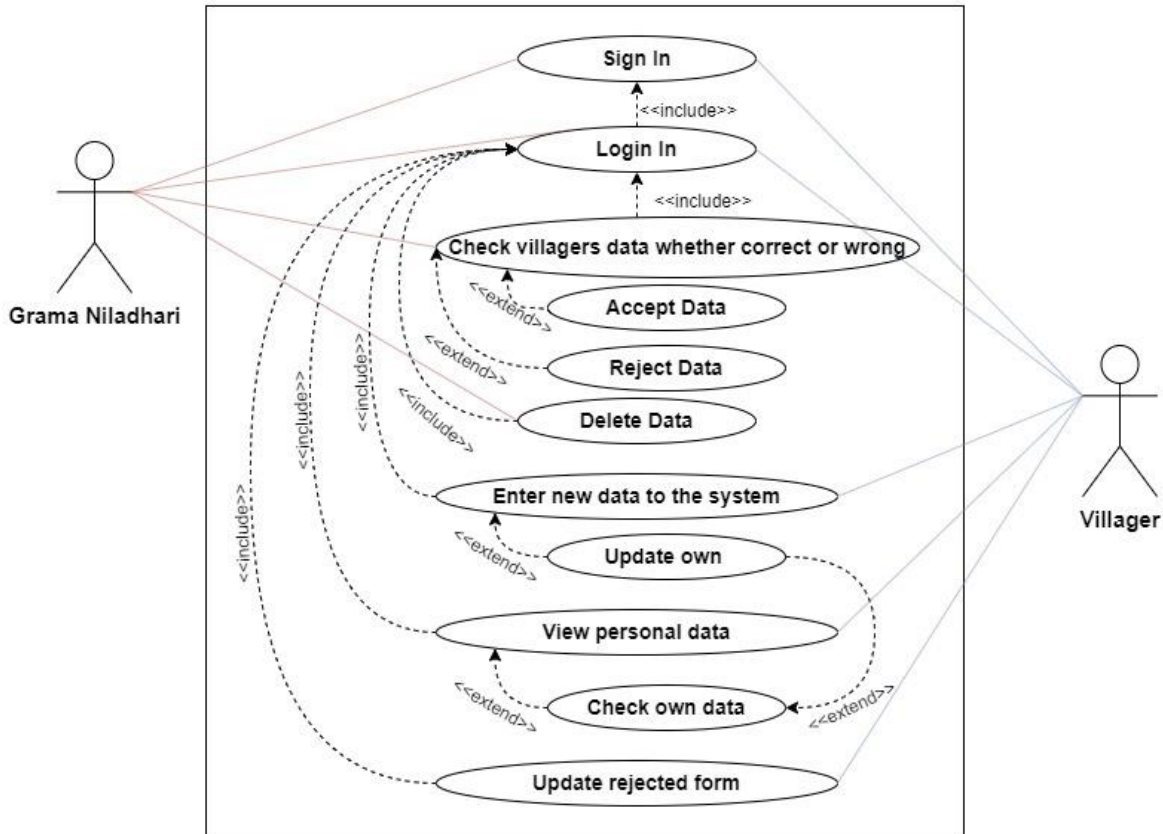


Figure 3 : Use cases

2.4 ER Diagrams

Entity-Relationship (ER) diagrams were created to visualize the data model of our system. These diagrams illustrated the entities, attributes, and relationships between them, providing insights into the database design for VillageVision Project.

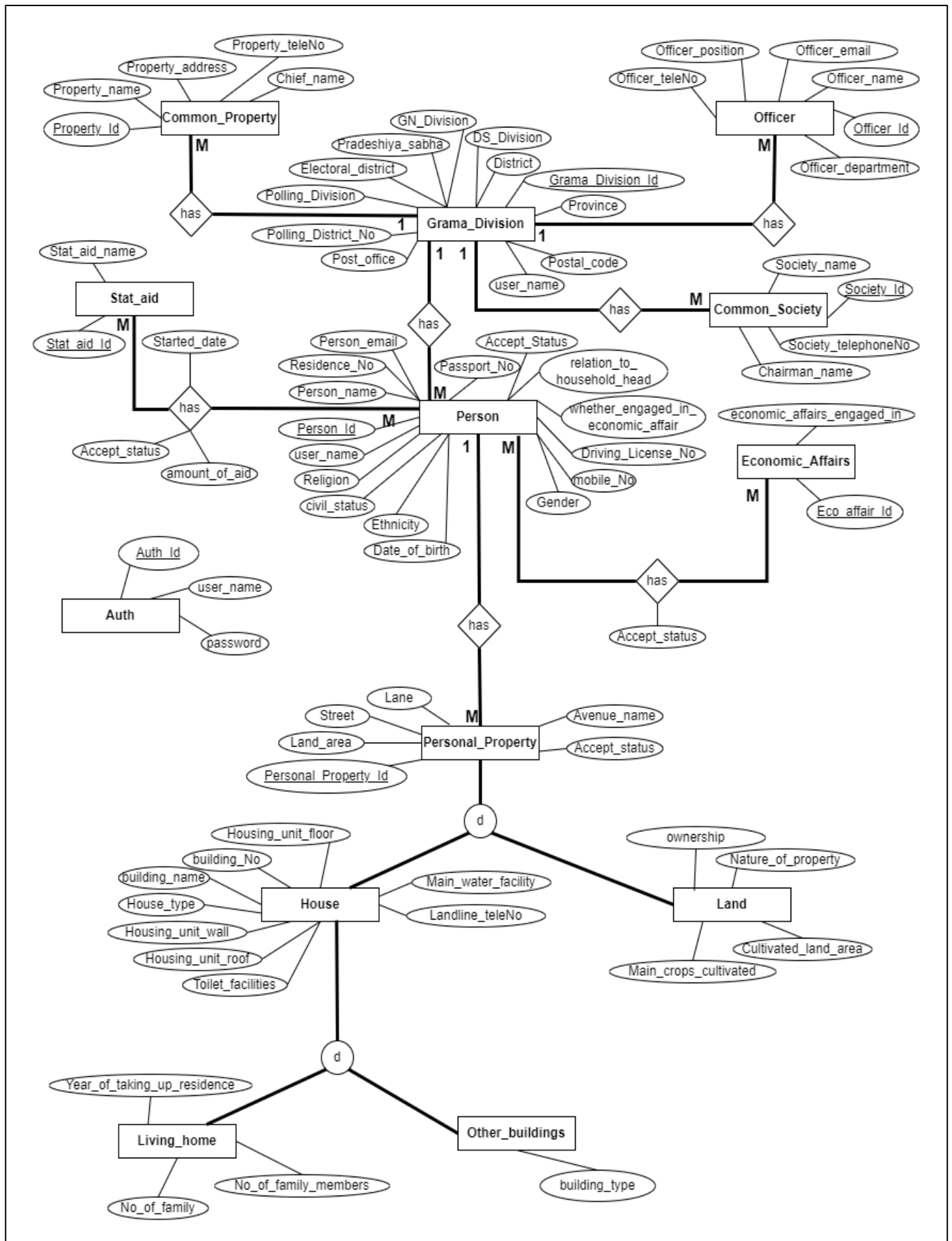


Figure 4 : Entity-Relationship (ER) diagram

2.5. Schema Diagram

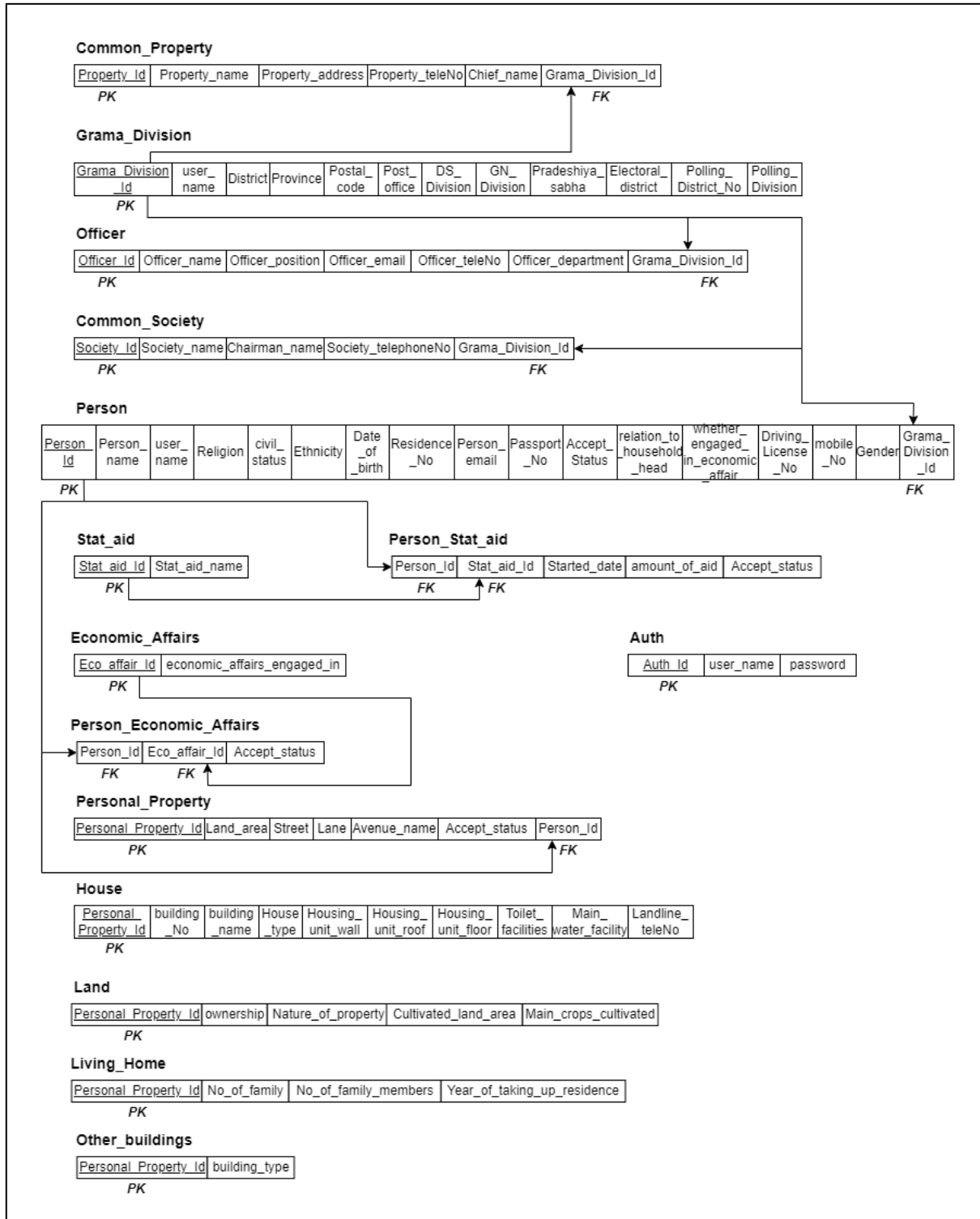


Figure 5 : Schema Mapping

3 Identification of Key System Features

Through the VillageVision analysis process several key system features were identified It's including

Integration with external systems

- Implement APIs or data exchange mechanisms

User interface design and user experience

- Design a user-friendly interface accessible to both Grama Niladhari officers and villagers. Set a feedback mechanisms.

Security measures

- Implement encryption techniques to secure sensitive data, such as personal information of villagers.

Scalability and performance optimization

- Monitor system performance regularly and scale resources as needed to maintain optimal performance levels.

4 Functional Requirements

Functional requirements are the functionalities and services that the system is expected to provide. These functionalities depend on the type of software and the usertype. These requirements define the system's functionalities. Here are the functional requirements in the VillageVision system.

- **User Authentication**

Grama Niladhari officers and community members must be able to log insecurely to access the system.

- **Data Entry**

Grama Niladhari officers should be able to enter and update community data. It includes demographic information, property details and social welfare status.

- **Data Access**

Community members should be able to access their personal data stored in the system securely.

- **Reporting Module**

Users should be able to contribute new information or report errors through a reporting module.

Which should include a process for Grama Niladhari personnel to validate and verify the information.

- **Real-time Updates**

The system should provide real-time updates to ensure that data is always current and accurate.

- **Data Validation**

Robust validation processes must be in place to verify the accuracy of submitted data before integration into the main database.

5 Non-functional Requirements

Nonfunctional requirements are the properties and constraints for the proposed system. These requirements are known as the nice to have features. In a system these nonfunctional requirements are more critical than the functional requirements. Following are the nonfunctional requirements that we hope to add to our VillageVision system.

- **The system shall be able to have security.**

Security is more important in this system because we have to store personal data and prevent unauthorized access.

- **The system shall be able to have a user-friendly interface.**

This is more important because users can do their tasks easily. And also it is more helpful to inspire people to use this system.

- **The system shall be able to have good performance.**

This is more important to handle a large volume of data.

- **This system shall be able to have reliability.**

Here, the system has stored personal information. So reliability is a must in this system.

- **The system shall be able to have accessibility.**

The system should be accessible to relevant users without any problems, conforming to accessibility standards.

- **The system shall be able to have scalability.**

This system should be scalable for accommodating future developments, growth and expansion.

6 Tools and Technologies expected to be used

- We expected to use Next.JS as our main framework.
- We decided to use HTML, CSS, Tailwind CSS, JavaScript to develop the user interface.
- We decided to use MySQL and MongoDB to develop the database of this system.

7 UI/UX Design

7.1 Home Page



Figure 6: Home Page

7.2 About Us Page

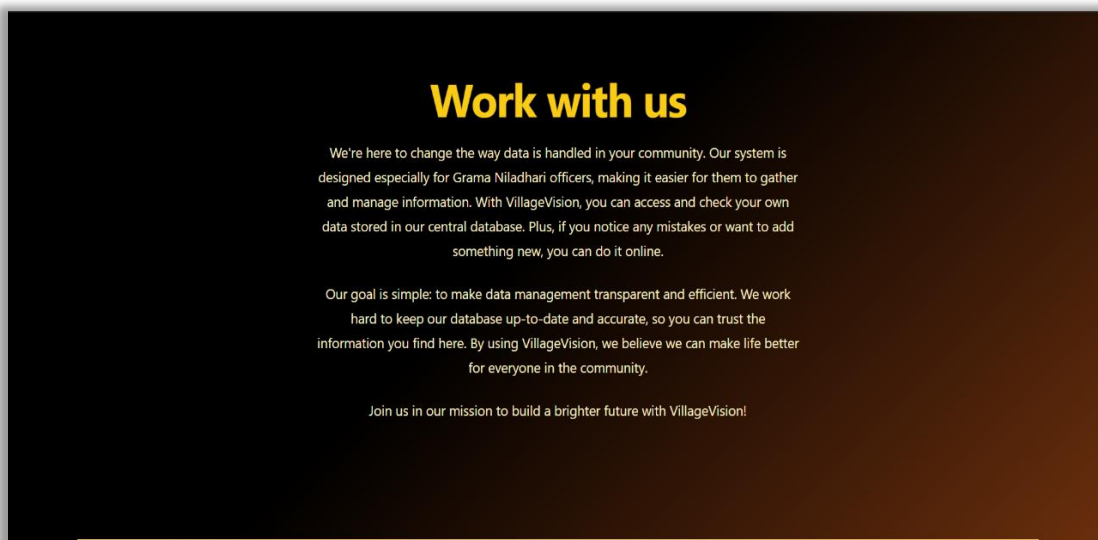


Figure 7: About Us Page

7.3 Village Details

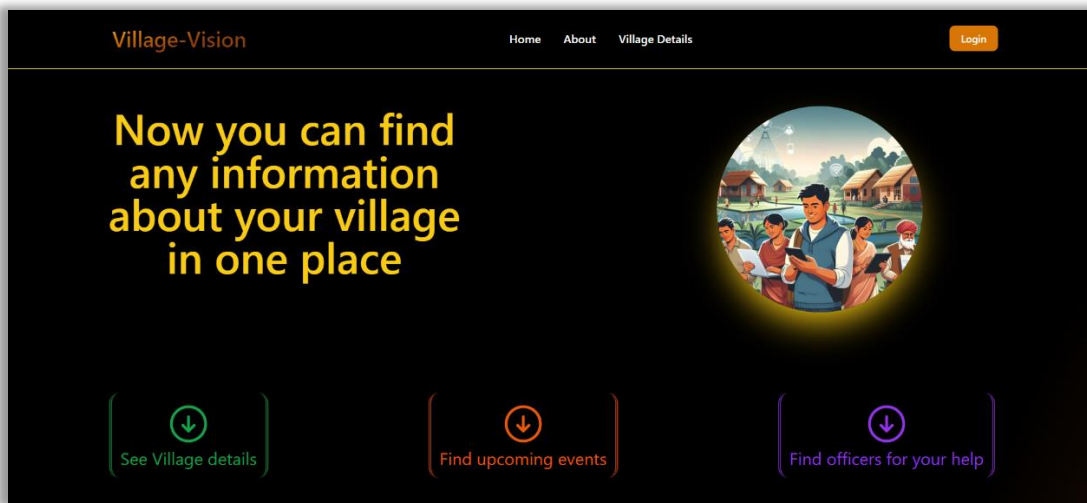


Figure 8: Village Details Page

7.3.1 See Village Details

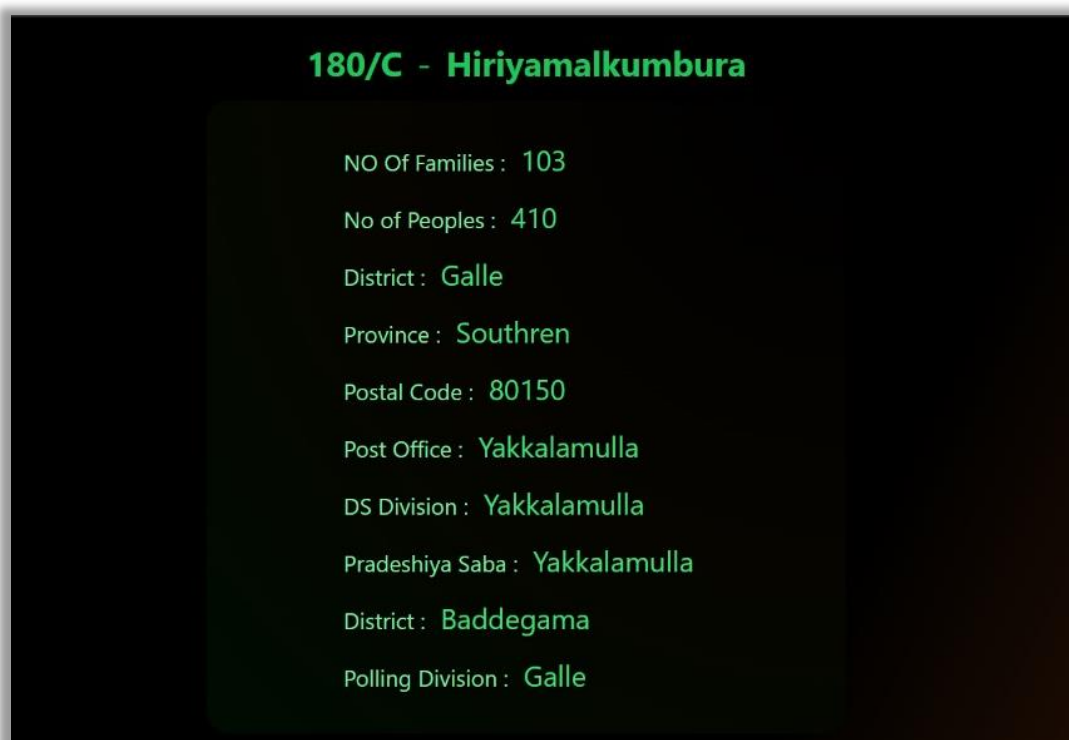


Figure 9: See Village Details

7.3.2 Finds Upcoming Events Page

Find Upcoming Events				
Date	Start Time	End Time	Venue	Event
2024-04-30	10.00 am	2.00 pm	Sri Sudarshanarama Viharaya	Govi samithiya
2024-04-30	10.00 am	2.00 pm	Sri Sudarshanarama Viharaya	Govi samithiya
2024-04-30	10.00 am	2.00 pm	Sri Sudarshanarama Viharaya	Govi samithiya
2024-04-30	10.00 am	2.00 pm	Sri Sudarshanarama Viharaya	Govi samithiya

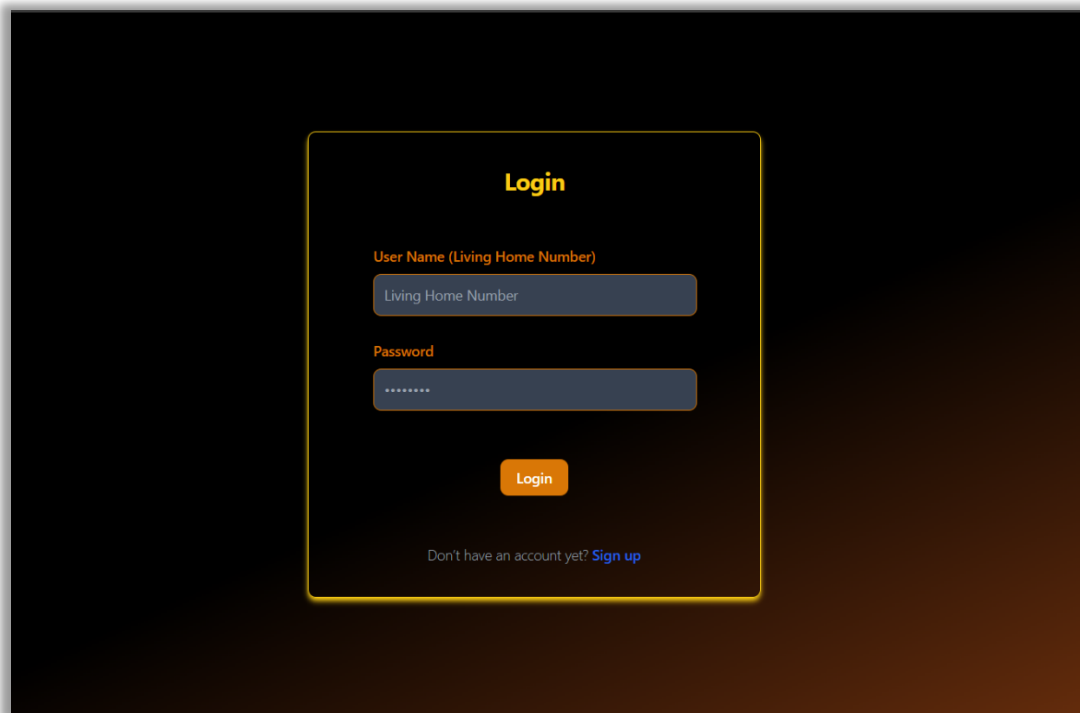
Figure 10: Find Upcoming Events

7.3.3 Finds officers for help Page

Find Officers				
Name	Position	Department	Telephone	Email
Sunil Jayawardhne	Grama Niladari	Sanganana Department	0779545863	sunil@gmail.com
Sunil Jayawardhne	Grama Niladari	Sanganana Department	0779545863	sunil@gmail.com
Sunil Jayawardhne	Grama Niladari	Sanganana Department	0779545863	sunil@gmail.com
Sunil Jayawardhne	Grama Niladari	Sanganana Department	0779545863	sunil@gmail.com

Figure 11: Find Officers

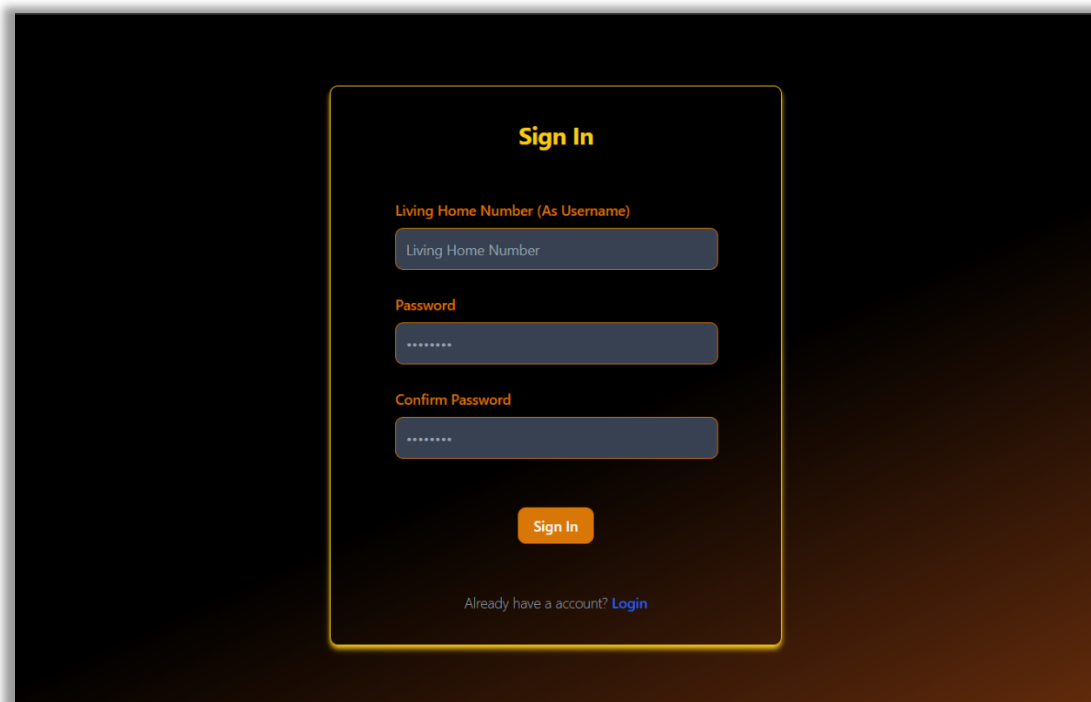
7.4 Login Page



The Login page features a dark blue gradient background. A central white rounded rectangle contains the login form. At the top of this rectangle is the title "Login" in bold black text. Below the title are two input fields: "User Name (Living Home Number)" and "Password". The "User Name" field contains the placeholder text "Living Home Number". The "Password" field contains six dots. Below these fields is a blue "Login" button. At the bottom of the form, there is a link that says "Don't have an account yet? Sign up" in a smaller, lighter blue font.

Figure 12: Login Page

7.5 Sign in Page



The Sign in page features a dark blue gradient background. A central white rounded rectangle contains the sign in form. At the top of this rectangle is the title "Sign In" in bold black text. Below the title are three input fields: "Living Home Number (As Username)", "Password", and "Confirm Password". The "Living Home Number" field contains the placeholder text "Living Home Number". The "Password" and "Confirm Password" fields each contain six dots. Below these fields is a blue "Sign In" button. At the bottom of the form, there is a link that says "Already have an account? Login" in a smaller, lighter blue font.

Figure 13: Sign in Page

7.5 Living Home Details Form

Village-Vision
Home
About
Village Details
Login

Living Home Details Form

Building / House Name

Address

Street
Lane

Avenue Name

Telephone Number

Land Area
Date of Taking up Residence
mm/dd/yyyy

Number of Families
Number of Family Members

House Type

- Single Unit / Single Storey
- Single Unit / 2 - Storey
- Single Unit / 3 - Storey or more
- Part of a single house
- Apartment of a multi-storey housing complex
- Part of Apartment of a multi-storey housing complex
- Annex
- Slums / Shanty
- Estate Sector Quaters
- Estate Sector Lines
- Temporary Camp
- Temporary House
- Other

Housing Unit Wall

- Cement blocks / Granite / Burnt Clay Bricks
- Unburnt Clay Bricks
- Laterite
- Clay
- Timber Boards
- Palmyra (Palm) leaves / Coconut leaves
- Polythene / Temporary raw materials
- Metal / Tin sheets
- Other

Housing Unit Roof

- Tiles
- Asbestos
- Concrete
- Tin Sheets
- Other strong sheets
- Tar sheets
- Coconut leaves / Palmyra Leaves / Grass
- Other

Housing Unit Floor

- Tiles / Titanium
- Concrete / Cement
- Sand / Cow Dung
- Other

Main Water Facility

- Protected Well
- Unprotected Well
- Tube Well
- Pipe borne water(NSWDB)
- Pipe borne water (Community water projects)
- Bottled Water
- Water distributed free of charge
- Water distributed at a cost
- Rivers / Waterfalls / Tanks / Reservoirs
- Agricultural Water
- Rain Water
- RO Plant
- Other

Toilet Facilities

- Water Sealed Toilets
- Pit Toilets
- Public Toilets
- Temporary Toilets
- Other

Back
skip
Next

Figure 14: Living Home Details Page

7.6 Personal Detail Form

Village-Vision Home About Village Details [Login](#)

Personal Details Form

Full Name

Email (If Have) Mobile Number (If Have)

NIC Number (If Have) Passport Number (If Have)

Driving Number (If Have)

Gender ☐ Male ☐ Female

Date of Birth mm/dd/yyyy

Religion ☐ Buddhist ☐ Hindu ☐ Islam ☐ Roman Catholic ☐ Other Christian ☐ Other ☐ Atheist

Ethnicity ☐ Sinhala ☐ Sri Lankan Tamil ☐ Indian Tamil ☐ Muslim ☐ Malay ☐ Burgher ☐ Other

Civil Status ☐ Single ☐ Legally Married ☐ Traditionally Married ☐ Widow / Widower ☐ Divorced ☐ Separated(Legally) ☐ Separated (Not Legally) ☐ Leagally not married. But living together

Relationship to the Head of the Household ☐ Head of the Household ☐ Spouse ☐ Son / Daughter ☐ Son-in-Law / Daughter-in-Law ☐ Parents of Head of the Household ☐ Parents of Spouse ☐ Grandson / Granddaughter ☐ Other Relatives ☐ Servant ☐ Non-relative / Other ☐ Clergy

Are you engaged in economic affairs? ☐ Yes ☐ No

[← Back](#) [skip →](#) [Next →](#)

Figure 16 : Personal Details Form

7.7 Lands Detail Form

Lands Details Form

Land No

Land Area

Address

Street

Lane

Avenue Name

Nature of Property

☐ High-Land Property

☐ Low-Land Property

☐ Houses / Building with Land

☐ Houses / Building without Land

☐ Other

Cultural Land Area

Main Crops Cultivated

Back

skip

Next

Figure 16: Land Details Form

7.8 Other Buildings Form

Other Building Form

Building No

Building Name

Address

Street

Lane

Avenue Name

Building Type

Land Area

Landline - Telephone Number

Nature of Property

☐ High-Land Property

☐ Low-Land Property

☐ Houses / Building with Land

☐ Houses / Building without Land

☐ Other

Housing Unit Wall

☐ Cement blocks / Granite / Burnt Clay Bricks

☐ Unburnt Clay Bricks

☐ Laterite

☐ Clay

☐ Timber Boards

☐ Palmyra (Palm) leaves / Coconut leaves

☐ Polythene / Temporary raw materials

☐ Metal / Tin sheets

☐ Other

Housing Unit Roof

☐ Tiles

☐ Asbestos

☐ Concrete

☐ Tin Sheets

☐ Other strong sheets

☐ Tar sheets

☐ Coconut leaves / Palmyra Leaves / Grass

☐ Other

Housing Unit Floor

☐ Tiles / Titanium

☐ Concrete / Cement

☐ Sand / Cow Dung

☐ Other

Main Water Facility

☐ Protected Well

☐ Unprotected Well

☐ Tube Well

☐ Pipe borne water (NSWDB)

☐ Pipe borne water (Community water projects)

☐ Bottled Water

☐ Water distributed free of charge

☐ Water distributed at a cost

☐ Rivers / Waterfalls / Tanks / Reservoirs

☐ Agricultural Water

☐ Rain Water

☐ RO Plant

☐ Other

Toilet Facilities

☐ Water Sealed Toilets

☐ Pit Toilets

☐ Public Toilets

☐ Temporary Toilets

☐ Other

Back

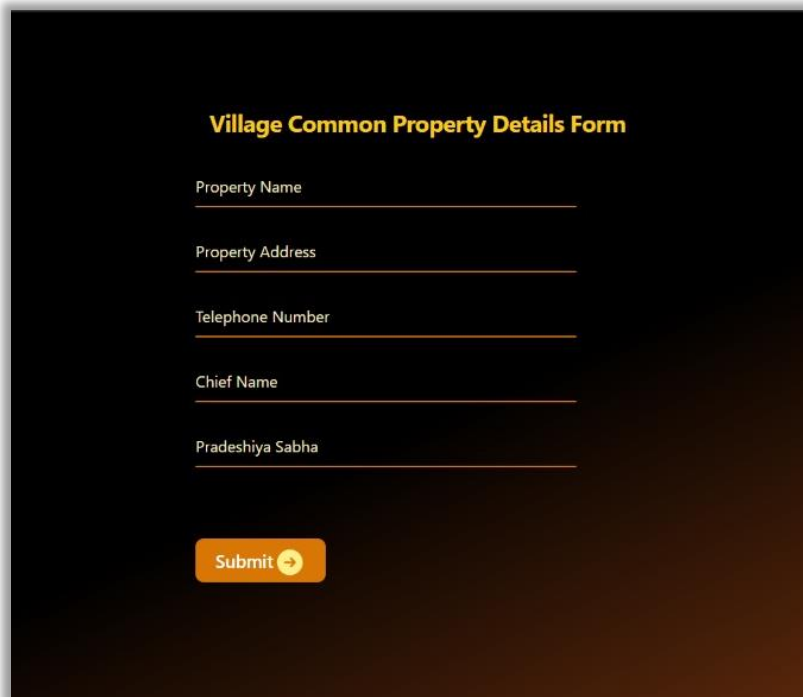
skip

Next

Figure 17: Other Buildings Form

7.9 Village Officer's Tasks

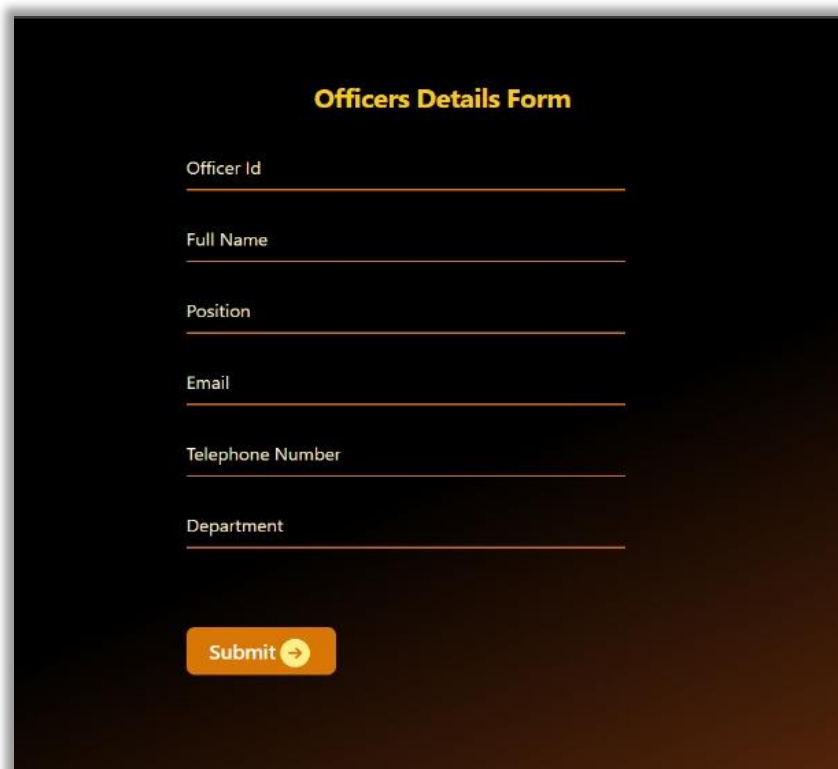
7.9.1 Village Common Property Details Form



The form is titled "Village Common Property Details Form" in a bold, dark blue font. It features five input fields with light blue labels: "Property Name", "Property Address", "Telephone Number", "Chief Name", and "Pradeshiya Sabha". Each field is a simple text box with a light blue border. At the bottom, there is a blue "Submit" button with a white right-pointing arrow icon.

Figure 18: Village Common Property Details

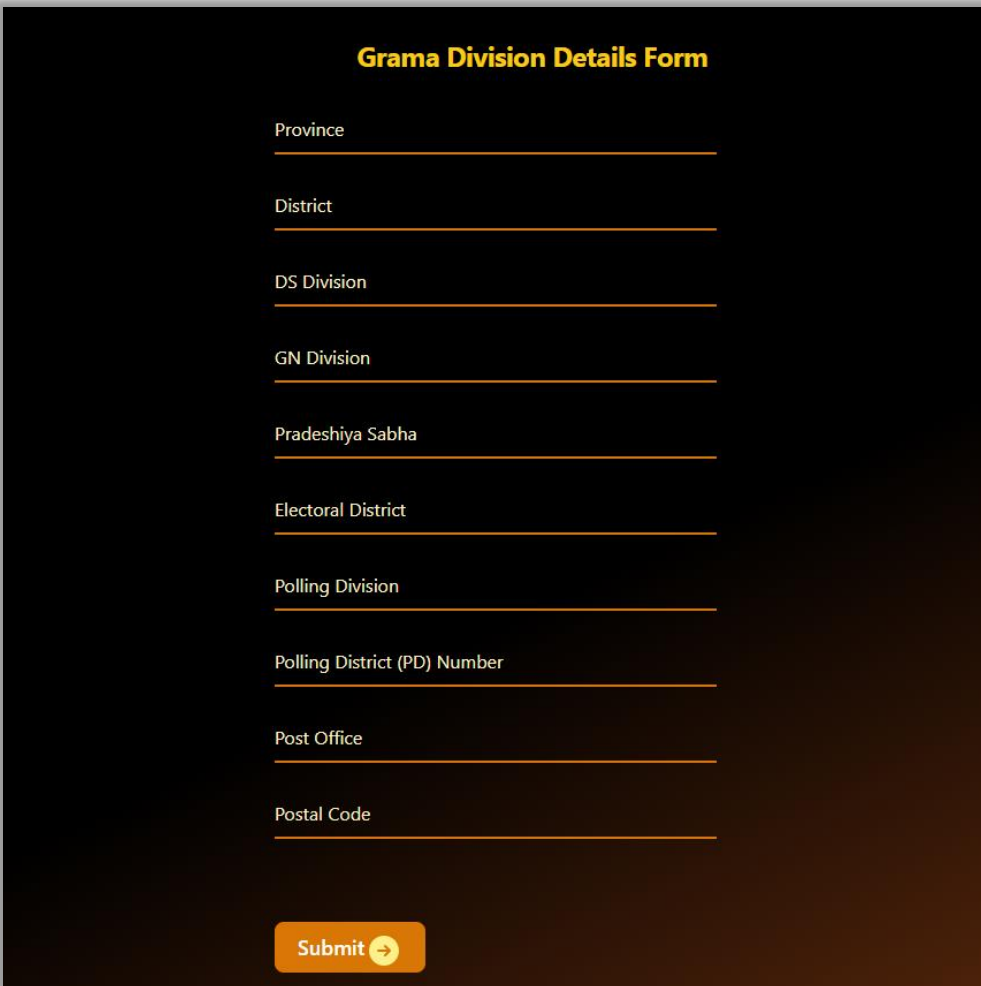
7.9.2 Village Officers Details Form



The form is titled "Officers Details Form" in a bold, dark blue font. It features six input fields with light blue labels: "Officer Id", "Full Name", "Position", "Email", "Telephone Number", and "Department". Each field is a simple text box with a light blue border. At the bottom, there is a blue "Submit" button with a white right-pointing arrow icon.

Figure 19: Officers Details Form

7.9.3 Grama Division Details Form



The image shows a digital form titled "Grama Division Details Form" with a dark blue background and light blue text. The form contains ten input fields, each with a label and a light blue underline. The labels are: Province, District, DS Division, GN Division, Pradeshiya Sabha, Electoral District, Polling Division, Polling District (PD) Number, Post Office, and Postal Code. At the bottom of the form is a blue rounded rectangular button with the text "Submit" and a right-pointing arrow icon.

Grama Division Details Form

Province

District

DS Division

GN Division

Pradeshiya Sabha

Electoral District

Polling Division

Polling District (PD) Number

Post Office

Postal Code

Submit →

Figure 20: Grama Division Details Form