

UNIVERSITY OF RWANDA

NATIONAL POLICE COLLEGE

SCHOOL OF ICT

COMPUTER SCIENCE DEPARTMENT

GROUP 8

Names and Registration numbers

MUGABO Nassan 220007563

ASHIMWE Dan 221009112

RANGIRA David 221012325

SECURE VILLAGE REGISTRATION SYSTEM WITH EMAIL-BASED MULTI-FACTOR AUTHENTICATION

Overview

This project is a Django-powered web application that secures access to a village membership registry via two-factor authentication (2FA). Every villager:

1. **Signs up** with email, password (and optional phone).
2. **Proves identity** by entering an emailed OTP.
3. **Registers village details** (name, age, household info) only after successful OTP verification.

Key Features

- **Landing page**
- **User account creation** (email + password)
- **Email-based OTP** for signup and login
- **Session-guarded registration form** for village data
- **Custom templates** for each step
- **Modular Django apps** (core for auth, registry for village data)

Technologies Used

- **Backend:** Python & Django
- **Frontend:** Bootstrap, HTML, CSS (custom)
- **Email Delivery:** Django `send_mail`, SMTP (e.g. Gmail)
- **Auth:** Django's `authenticate` + session flags + custom OTP model
- **Database:** SQLite (dev) / PostgreSQL (prod)
- **Env Management:** `python-decouple` for secrets

Objective

Show how to lock down a sensitive registration process using MFA, ensuring that only verified villagers can input their personal and household information into the community registry.

Landing page

Welcome to Gikwege Village

A community where everyone belongs. Join us today!

Login

Signup



Meet Our Villagers

Rangira David

Age: 29

Occupation: First member

Part I: Authentication Flow

1. User Signup

- Villager visits **/signup/**, enters email, password, (phone).
- On submit, an OTP is generated and emailed.
- Villager is redirected to **/verify-otp/**.

Signup

Email

mugabonassan50@gmail.com

Password

.....

Phone (optional)

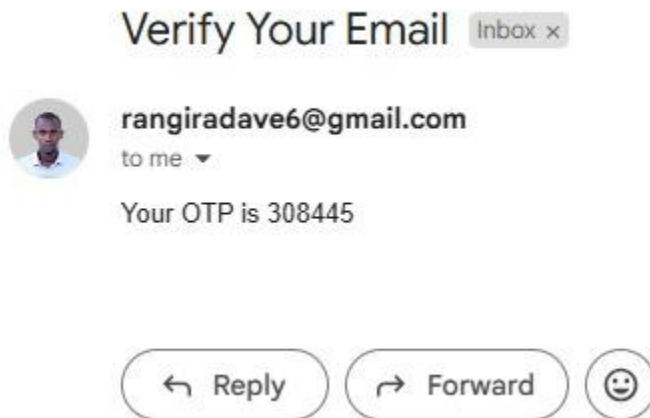
0780255171|

Signup

Already have an account? [Login here](#)

2. OTP Verification (Signup)

- Villager enters the emailed code.
- On success, account is created and session flagged.



3. Login

- Villager returns to **/login/**, enters credentials.
- A fresh OTP is emailed; session carries email for verification.

Login

Email

Password

Login

Don't have an account? [Signup here](#)

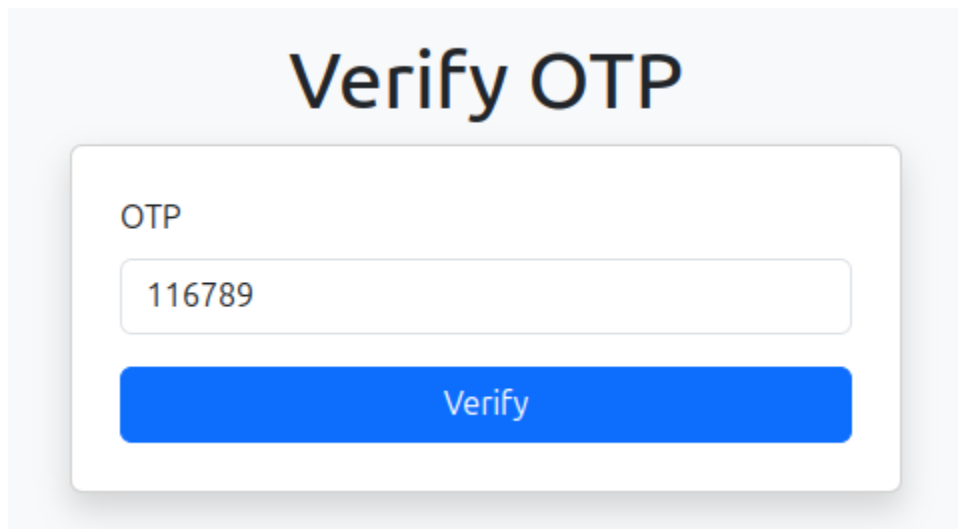
4. OTP Verification (Login)

- Villager enters login OTP at **/verify-otp/**.
- On success, session's `authenticated=True`; user is sent to the registry form.

^ Unread

☐ ☆ me

Your OTP Code - Your OTP is 116789



The image shows a 'Verify OTP' form. At the top, the text 'Verify OTP' is displayed in a large, bold, black font. Below this, there is a white rectangular box with rounded corners. Inside this box, the label 'OTP' is positioned above a text input field. The input field contains the number '116789'. Below the input field is a prominent blue button with the word 'Verify' written in white text.

Part II: Village Member Registration

Once authenticated, each villager fills out the **/register/** form to join the community registry.

1. Registration Form

Fields include:

- **Full Name**
- **Date of Birth**
- **Details**

Welcome to Gikwege Village

Register yourself as a villager and see the list of all villagers!

Register as a Villager

Name

Mugabo Nassan

Age

30

Occupation

New member

Register

List of Villagers

Rangira David (29 years old) - First member

Add New Villager

2. Submission & Confirmation

- On submit, data is saved in a **MemberProfile** model linked to the user.
- Villager sees a confirmation page summarizing their info.

Welcome to Gikwege Village

Register yourself as a villager and see the list of all villagers!

Register as a Villager

Name

Age

Occupation

Register

List of Villagers

Rangira David (29 years old) - First member

Mugabo Nassan (30 years old) - New member

Add New Villager

Logout

Conclusion

This demo shows how to protect a village registry with email-based MFA, ensuring that only verified villagers can enter their personal and household details. Feel free to swap in your screenshots for each step, and let me know if you'd like deeper dives on any piece of the workflow!