

Namami Gange

AI-Powered Water Quality Monitoring Platform



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B79 G20

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Abstract



- Overview of the project using AI to analyze and monitor water quality of Ganga River.
- Integrates machine learning models with mobile technology and Firebase backend.
- Aims to deliver accurate water health status and alert users in real-time.

A photograph showing the back of a man's head and shoulders. He is wearing a red shirt and a yellow and brown striped cloth draped over his shoulder. He is holding a brass lamp (diya) with a large flame towards the Ganges River. The water is visible in the background.

Introduction

- Ganga is India's lifeline, but its health is deteriorating.
- Namami Gange is a national mission to clean the Ganga.
- Our project aligns with its goals using modern tech for citizen engagement



Methodology

- Collect data: pH, DO, BOD, temperature, turbidity.
- Train model using Google Colab.
- Design UI in Flutter.
- Connect with Firebase for user management and database.
- Build real-time prediction interface.

Problem Statement

- **Pollution in the Ganga River continues to rise due to population growth and untreated sewage**
- **Manual water testing is slow and limited.**
- **Citizens lack access to timely and accurate water quality information.**
- **There's a need for a scalable, digital, and real-time monitoring system.**



Proposed Solution



- Develop a mobile app integrated with AI to analyze water quality.
- Uses Firebase for user authentication, data storage, and real-time updates.
- Provides pollution levels, categorizes safety for activities (e.g., bathing, drinking), and alerts for high-risk zones.
- Simple UI with OTP-based login and data visualization.

Related Work



- Existing projects mostly focus on IoT and satellite data.
- They lack integration with mobile platforms or AI prediction models.
- Our project fills this gap using supervised learning and accessible app UI.

Hardware/Software Required

- **Software:** Python, Flutter, Firebase, Google Colab, Android Studio
- **Hardware (if extended):** IoT sensors (optional), Smartphone for testing





Experimental Results

- Show model accuracy: ~90%+ with good prediction reliability.
- Include sample inputs and their prediction results.
- Screenshots of the functional app UI.

Conclusion

- Project enables people to track water quality on their phone.
- Supports Namami Gange's mission with tech intervention.
- Encourages clean water awareness and public participation.



Future Scope

- IoT sensors to collect real-time water parameters.
- GPS location tagging of pollution sources.
- Integration with govt databases and pollution alerts.
- Multi-language support and voice alerts.

Namami Gange
AI-Powered Water Quality Monitoring

Safeguarding the Ganga, One Data Point at a Time.

Monitor Now Learn More

Latest Insight
Water quality at Kanpur shows concerning BOD levels. Check dashboard for details.

Sign In

Enter your email to receive a One-Time Password (OTP).

Email address

Send OTP

Protecting The Ganga River

Ganga is the most sacred river in India, supporting over 400 million people. Our platform helps monitor and predict water quality to preserve this vital resource.

Namami Gange

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Pollution Alert
High pollution levels detected at Kanpur. BOD exceeds safe limits.

Monitoring Stations

Monitoring Stations

- Rishikesh
- Haridwar
- Kanpur
- Varanasi
- Patna
- Kolkata

Dissolved Oxygen (mg/L)

Date: 2025-04-21
Dissolved Oxygen (mg/L): 5.786093765249316

DO BOD Nitrate Ammonia Coliform

Historical Data AI Prediction

AI Insights BETA

Core Features

Comprehensive tools for monitoring and analyzing water quality

Water Monitoring

Get real-time water quality data from multiple stations along the Ganga. Parameters include DO, BOD, nitrate, ammonia, and coliform levels.

AI-Powered Forecasting

Our machine learning models predict water quality parameters for 3-5 days ahead, enabling proactive intervention.

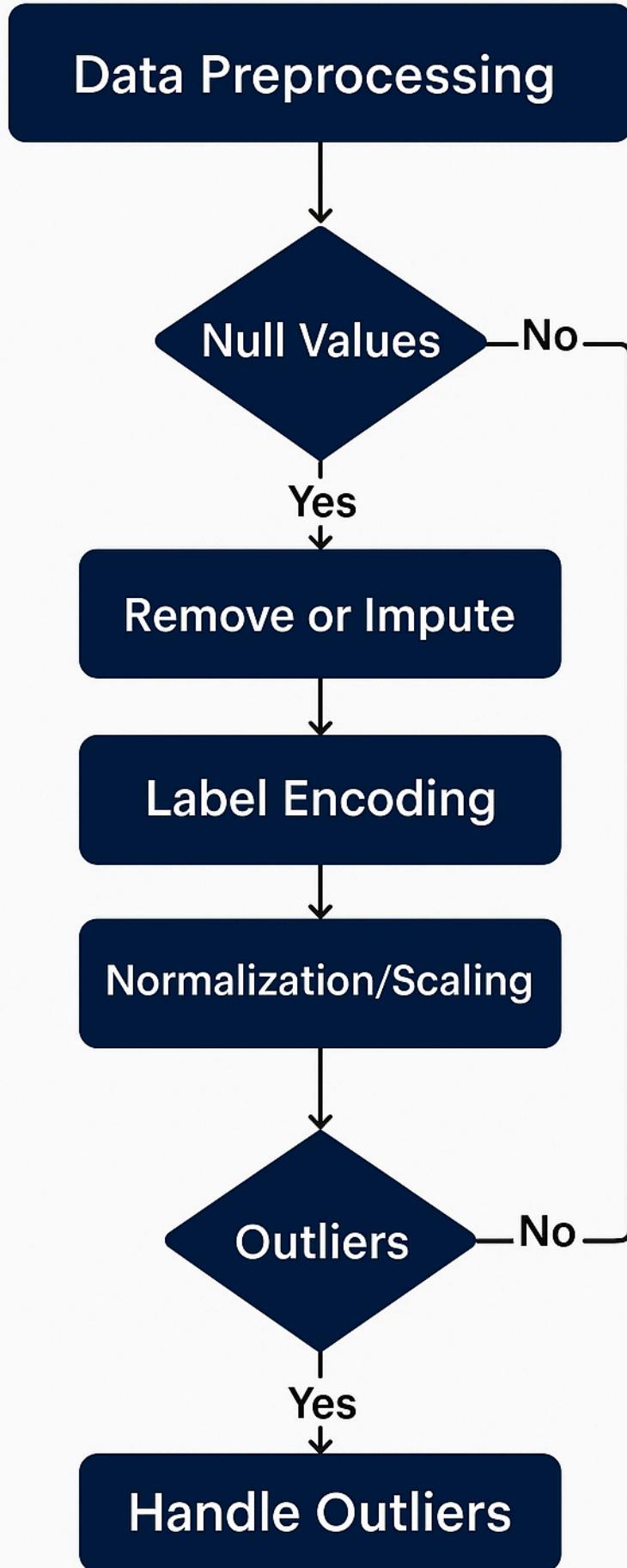
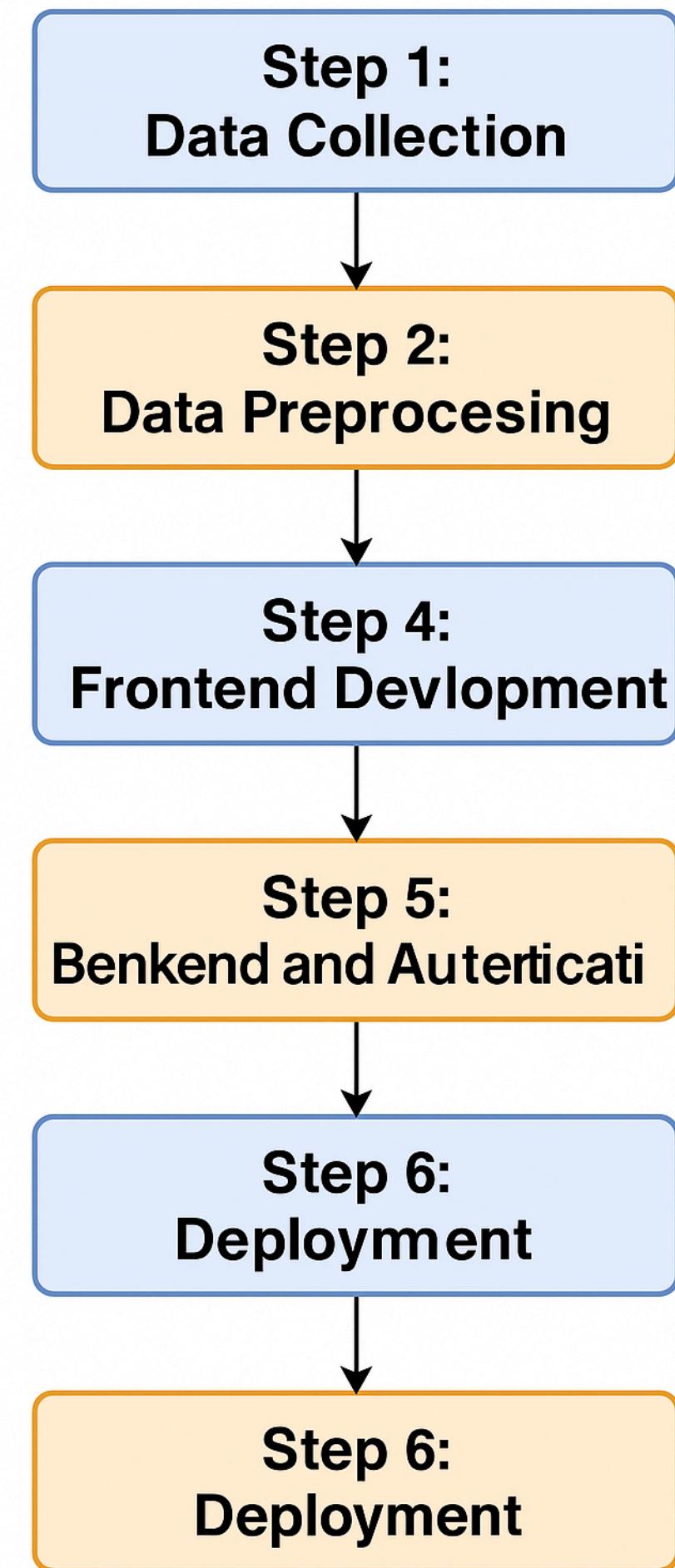
Dashboard

Analyze time-series data, spatial patterns, and trends through an intuitive interface.

Smart Alerts & Notifications

Receive timely alerts when water quality parameters exceed predefined thresholds or show concerning trends.





A photograph of a woman in a yellow sari with green and black circular patterns, performing aarti (offering) by the Hooghly River in Kolkata, India. She is standing in shallow water, holding a small lamp and a red cloth. In the background, the Howrah Bridge spans the river under a clear blue sky. The word "Thank you!" is overlaid in large, white, sans-serif letters.

Thank you!