

Name : V.Thirushanth
Register Number : 732323106050
Institution : [SSM COLLEGE OF ENGINEERING]
Department : [B.E(ECE)]
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1.Problem Statement

Public Health: Poor environmental quality is linked to respiratory diseases, waterborne illnesses, and other serious health conditions.

Policy & Regulation: Accurate predictions can help government agencies enforce environmental regulations and respond to violations quickly.

Sustainability: Insightful predictions support proactive actions to reduce environmental impact and promote sustainable practices.

Efficiency: Automating the prediction process enhances monitoring accuracy and reduces the cost and time involved in environmental assessments.

By solving this problem, we can move toward smarter, more efficient environmental management that safeguards both human health and natural ecosystems.

2.Objectives of the Project

Develpement of Predictive Models: Build and evaluate machine learning models (e.g., Random Forest, Gradient Boosting, Neural Networks) tailored to the environmental dataset.

Accurate Quality Level Classification or Forecasting: Predict environmental quality indicators (e.g., AQI levels, pollutant concentrations) with high precision.

Feature Importance Analysis: Identify the most influential environmental factors affecting quality levels.

Visualization of Insights: Present predictions and insights through intuitive visualizations or dashboards.

Real-World Applicability: Ensure the models are practical for deployment in real-world scenarios, supporting policy-making, public awareness, and environmental protection initiatives.

Ultimately, this project aims to bridge the gap between raw environmental data and meaningful insights, enabling smarter, data-driven approaches to environmental monitoring and management.

3.Scope of the Project