

Water Quality Analysis

Team members:

Rohit Sharma *A20475953*

Devansh Goel *A20490554*

Aman Sahu *A20492367*

Problem Description

Safe drinking water is essential to a healthy life. It is a fundamental human right. Healthy drinking water is vital as a health and development issue at a national, regional, and local level. In some regions, investing in water supply and sanitation can yield a net economic benefit since the reductions in adverse health effects and health care costs outweigh the costs of undertaking the interventions. The aim of this study is the prediction of water quality components using Logistic Regression, K Nearest Neighbors, Support Vector Machine, Decision Tree, and Random Forest.

A brief survey of what have been done and how the proposed work is different

A hybrid decision tree-based machine learning model was proposed to predict the water quality with 1875 data. In the evaluation process, six water quality parameters were used to predict the water quality. Logistic Regression, K nearest Neighbours and XGBoost algorithms were used for this project and got 68% accuracy.

Our project would include a total of 9 water quality parameters, and we are planning to use latest machine learning algorithms to get more accuracy.

Preliminary plan (milestones) and Reference (a list of papers)

1. Collecting water quality data
2. Preparation of Data
3. Choosing a Model
4. Training the model
5. Evaluating the model
6. Parameter Tuning
7. Making Predictions

References:

Y. Khan and C. S. See, "Predicting and analyzing water quality using Machine Learning: A comprehensive model," 2016 IEEE Long Island Systems, Applications and Technology Conference (LISAT), 2016, pp. 1-6, doi: 10.1109/LISAT.2016.7494106.

<https://ieeexplore.ieee.org/document/7494106>

Pal, Osim. (2022). The Quality of Drinkable Water using Machine Learning Techniques. International Journal of Advanced Engineering Research and Science. 9. 16-23. 10.22161/ijaers.96.2.

https://www.researchgate.net/publication/361118196_The_Quality_of_Drinkable_Water_using_Machine_Learning_Techniques