

PROJECT DESIGN PHASE-I

PROPOSED SOLUTION

TEAM ID	PNT2022TMID51007
PROJECT NAME	Efficient Water Quality Analysis and Prediction using Machine Learning
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PROBLEM STATEMENT:

We all know water is one of the most essential resource for our living. We can't survive without water. But as the development is increasing, we are exploiting water by wasting it and treating it with harmful materials which makes water impure and unfit for use. This is the reason it is very important to know the quality of water.

The major goal of this project is to use machine learning techniques to measure water quality. A potability is a numerical phrase that is used to access the quality of a body of water. Potability indicates if water is safe for human consumption where 1 means Potable and 0 means Not potable. (0) Water is not safe to drink and (1) Water is safe to drink. In this project, Water Quality Index (WQI) quality status of water is predicted through some parameters. The following water parameters were utilized to assess the overall water quality in terms of potability. Ph, hardness, solids, chloromines, sulfate, conductivity, organic carbon, trihalomethanes, turbidity were the parameters.

IDEA / SOLUTION DESCRIPTION:

The algorithms used to predict the water quality are Naive Bayes algorithm, K-Nearest Neighbor (KNN) and Support vector algorithm. In addition to that, Gradient Boosting algorithm is also used.

NOVELTY / UNIQUENESS:

In early days, water quality is used to find with help of WQI and WQC. Now, the solution is find with help of advanced artificial intelligence and it include seven parameters.

SOCIAL IMPACT / CUSTOMER SATISFACTION:

Living organisms need water with enough quality to continue their lives. There are certain limits of pollutions that water species can tolerate. Exceeding these limits affects the existence of these creatures and threatens their lives.

During the last few years, water quality has been threatened by various pollutants. Therefore, it is very important to important to control water pollution by suggesting new approaches to analyse and to predict the water quality (WQ). It is recommended to consider the temporal dimension for forecasting the WQ patterns to ensure the monitoring of the seasonal change of the WQ. In this, advanced artificial intelligence (AI) algorithms are developed to predict water quality index (WQI) and water quality classification (WQC).

BUSINESS MODEL:

It increases revenues and job opportunities. The revenue stream include the Promoted trends and method. Technology and production is improved in business side. It increases the profit and also the logistic way.

SCALABILITY OF THE SOLUTION:

Scalability of this solution can handle any amount of data and perform many computations in a cost effective and time saving to instantly serve millions of users residing at global location.