# EFFICIENT OF WATER QUALITY ANALYSIS AND PREDICTION USING MACHINE LEARNING

## Proposed solution

### 1. Problem Statement(Problem to be solved)

To build a analysis and prediction system which can predict the quality of water.

### 2. Idea/Solution description

.       On behalf of the water borne disease and certain caused because of water, we have proposed a solution based on the Study of water quality, which tells about present status of useable water for domestic as wellas industrial use. Indiscriminate and wasteful water consumption and improper waste disposalpractices have led to deterioration in the water quality. Due to the pressure of human activity,urbanization and industrialization, the ground water sources are degraded gradually. Thereforepure, safe, healthy and odorless drinking water is a matter in deep concern. There are manypollutants in ground water due to sewage viz., organic and inorganic pollutants, heavy metals,pesticides,  fluoride  etc. The purpose was to ascertain the quality of water from thesesources .These were analyzed for pH, EC, TDS, TH, F-, Ca, Mg, Cl-, D.O, Alkalinity andmany more using standard techniques. And by analaysing a good water for drinking, agriculture etc.

### 3. Novelty/Uniqueness

Number of water quality parameters are measured to determine water quality. These parameters include physical properties like pH, colour, turbidity, suspended solids, temperature,  conductivity, odour etc. Chemical properties like COD, BOD, total nitrogen, total phosphorus, total pesticides etc. Biological properties include total coliform bacteria, fecal coliform counts, faecal streptococci counts, salmonella counts etc.[10]  The chemical attributes that are being tested in the present study are as follows:- pH  Total alkalinity  Calcium hardness  Electrical Conductivity  Chloride  Dissolved Oxygen  Biological Oxygen Demand  Chemical Oxygen Demand  Total Dissolved Salts  Total Suspended Salts   The total review of all these parameters can give an idea of the water quality. And thus determining the above factors and providing them in an easy understandable could provide information to the user or public.

### 4. Social Impact/Customer Satisfaction

It aimed to gather and make available good wastewater treatment technologies, support policies and financial instruments, and showcase how these can be incorporated within an integrated wastewater management approach by analysing case study lessons. Water quality is also an essential factor for certain tourism activities and sewage treatment leads to enhanced tourist attraction. In most countries, non-compliance with certain norms for bathing water leads to the closure of beaches and lakes for recreational purposes and therefore influences strongly the local tourism economy.

## 5. Business Model (Financial Benefit)

The provision of water supply, sanitation and wastewater services generates substantial benefits for public health, the economy and the environment. Benefits from the provision of basic water supply and sanitation services such as those implied by the Millennium Development Goals are massive and far outstrip costs. Benefit-to-cost ratios have been reported to be as high as 7 to 1 for basic water and sanitation services in developing countries. Wastewater treatment interventions can generate significant benefits for public health, the environment and for certain economic sectors such as fisheries, tourism and property markets, although these benefits may be less obvious to individuals and more difficult to assess in monetary terms. Finally, protecting water resources from pollution and managing water supply and demand in a sustainable manner can deliver clear and sizeable benefits for both investors in the services and end water users. Investments in managing water resources are going to be increasingly needed in the context of increasing water scarcity at the global level. The full magnitude of the benefits of water services is seldom considered for a number of reasons. Non-economic benefits that are difficult to quantify but that are of high value to the concerned individuals and society, i.e. non-use values, dignity, social status, cleanliness and overall well-being are frequently under-estimated. In addition, benefit values are highly location-specific (depending on the prevalence of water-related diseases or the condition of receiving water bodies, for example) and cannot be easily aggregated.

## 6. Scalability of Solution

Access to safe drinking water and sanitation remains a significant challenge, whilst other sectors including ecosystems, industry, energy and agriculture are also experiencing increasing pressure. Thus, it is increasingly important to use available resources more intelligently, make the most of the massive potential for wastewater reuse, and balance the water quality requirements between different uses. Our current state of knowledge regarding global water quality remains poor. Existing water quality

data is urgently lacking, but is essential for the global water community to better identify specific problems as well as potential solutions.

Water Quality is also one of the main challenges to achieving the global agenda as outlined by the Sustainable Development Goals (SDGs). Water quality is a crucial consideration for efficient water resources management. Improving water quality management is seen as essential for a more balanced and multidimensional approach to the research, policy-making, governance, operations and management of water resources. In order to improve water security, water quality management must improve. This is particularly evident in situations where water quality degradation or inappropriate use of water qualities is responsible for reducing the necessary quantity of water available for various uses. Similarly, socio-economic improvement is dependent on access to sufficient water of appropriate quality for its various development paths.

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