Water Quality Monitoring Model using Machine Learning

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Abstract: *Water is one of the vital elements for the existence of life. Quality and accessibility of potable water are growing concerns all over the world. Water from natural sources is usually contaminated with wide variety of substances like pathogenic microorganisms, organic waste, fertilizers and sediments, petroleum that pose health concerns. Taking these factors into consideration, we have proposed a system that classifies water as clean or turbid, considering its physical properties. The system makes use of IoT and Machine Learning Technology. It consists of physical and chemical sensors that detect pH, turbidity, temperature, and TDS to investigate the influencing parameters. The data is collected by sensors, saved in a database, and then submitted to the machine learning model for analysis. When any of the parameters falls below the standard values the water is classified as turbid. There are some pre-existing similar systems that use sensors and machine learning to analyse water quality. However, the novelty in our proposed model lies in the use of neural networks with an optimum number of hidden layers that will predict the best result. Use of neural networks overcomes the shortcomings of other classification algorithms like SVM, KNN etc, as the neural network model analyses the data multiple times over various epochs and gives the optimum result. Also, we will be using advanced sensors that can give precise inputs to the ML model. This tracks the water quality and notifies the user about the water sample being examined.*

Keywords: Machine Learning, Neural Networks, Internet of Things

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