REAL-TIME WATER QUALITY MONITORING AND CONTROL SYSTEM

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ABSTRACT:

This paper discusses a system designed to analyze water properties such as turbidity, dissolved solvents, pH, and temperature. Water pollution was assessed by comparing the measured values to their respective ideal limits. For data processing and transmission, the sensors are linked to the Arduino UNO and Raspberry Pi. The system is intended to float on the water body while transferring the measured data to a remote location through Wi-Fi. The designed water quality monitoring device uses 17 Watts of on-board power and takes 8 seconds to analyze one set of information. Fertilizers (nitrogen and phosphorus) and biocides (herbicides, fungicides, and insecticides) are examples of agricultural chemicals. Algal blooms and disturbance of biological function are examples of surface water environmental consequences. Improved agricultural land management, conservation farming practices, and recycling or retention of drainage and runoff water are all strategies for protecting rivers from eutrophication. The therapy procedures were investigated utilizing ultrasonic frequencies of 20, 40, and 60 KHz at various time intervals of 15, 30, 45, and 60 minutes. The elimination percentage of Total Coliform, Faecal Coliform, and Faecal Streptococcus varied between 5% and 46%, according to the research. Ultrasonic intensity, sonication time, and bacterial eradication all had a favourable connection. The release of photosynthetic pigments "Chlorophyll" causes noticeable morphological changes in algal species without cell breakage, particularly in green algae. There were no changes in the concentration of chlorophyll "a." Pretreatment with ultrasonic frequencies of 20, 40, and 60 KHz for 60 minutes reduced the alum dosage by 6.7%, 13.3%, and 20%, respectively.