

**RECONFIGURABLE SMART WATER QUALITY
MONITORING
SYSTEM IN IOT ENVIRONMENT**

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ABSTRACT:

Nowadays Internet of Things (IoT) and Remote Sensing (RS) techniques are used in different area of research for monitoring, collecting and analysis data from remote locations. Due to the vast increase in global industrial output, rural to urban drift and the over-utilization of land and sea resources, the quality of water available to people has deteriorated greatly. The high use of fertilizers in farms and also other chemicals in sectors such as mining and construction have contributed immensely to the overall reduction of water quality globally. Water is an essential need for human survival and therefore there must be mechanisms put in place to vigorously test the quality of water that made available for drinking in town and city articulated supplies and as well as the rivers, creeks and shoreline that surround our towns and cities. The availability of good quality water is paramount in preventing outbreaks of water-borne diseases as well as improving the quality of life. The development of a surface water monitoring network is a critical element in the assessment and protection of water quality. We developed a prototype of easy to install technology by which the different surface water (e.g. rivers, lakes) quality indicators can be measured. This paper presents a smart water quality monitoring system.

INTRODUCTION:

Water is used in various activities, such as consumption, agriculture and travel, which may affect water quality. Therefore, the water quality monitoring is necessary which includes several chemical parameters. Some of these are: pH, redox potential, conductivity, dissolved oxygen, ammonium and chloride ion amount. The water quality problems of surface water bodies are predominately caused by organic and nutrient material loads.

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More than 90% of the River Basin Management Plans (RBMP) assessed indicated that agriculture is a significant pressure in the basin, including diffuse or point source pollution by organic matter, nutrients, pesticides and hydro-morphological impacts.

The RBMP gives the diffuse Nitrogen and Phosphorous load of each surface water body identifying the load from agricultural waste water body identifying the load from agricultural, waste water treatment plan, urban and other areas to the water body. There is need to improve existing system for monitoring water bodies, given that laboratory methods are too slow to develop an operational response and does not provide a level of public health protection in real time. Improve and expand monitoring and assessment tools to ensure a statistically robust and comprehensive picture of the status of the aquatic environment for the purpose of further planning.

The project reviews new innovative technologies with the focus on the on-line monitoring and control.

Monitoring provides the information that permits rational decisions to be made on the following:

- Describing water resources and identifying actual and emerging problems of water pollution,
- formulating plans and setting priorities for water quality management,
- developing and implementing water quality management programs,
- evaluating the effectiveness of management actions.

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