

# LITERATURE FOR REAL-TIME RIVER WATER QUALITY MONITORING AND CONTROL SYSTEM

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## ABSTRACT

Nowadays water is the most valuable for all the human beings drinking water utilities faces challenges in real time operation. These challenges occurred because of growing population, limited water resources, ageing infrastructure etc. Hence there is a need of better methodologies for monitoring the water quality. To reduce the water related diseases and prevent water population World health Organization (WHO) has also stated This crisis as "the largest mass poisoning of a population in history". The main goal of this paper to build a Sensor- based Water Quality Monitoring System.

## INTRIDUCTION

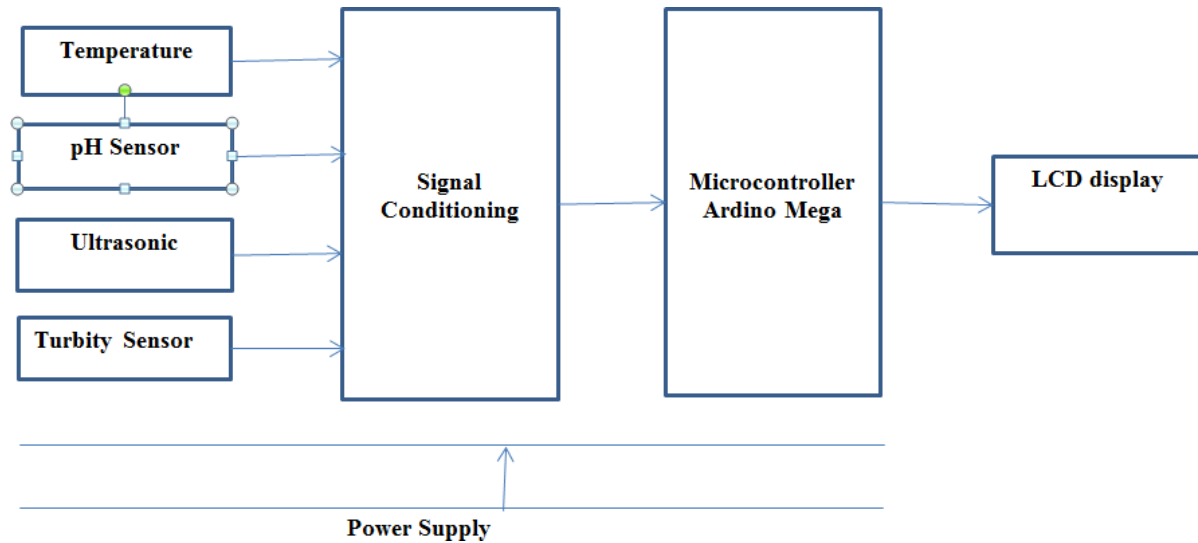
Water is the primary need of all living beings and living without water is impossible. With the advancement of technology and industrialization, environmental pollutions have become a major concern. Water pollution is one of the most serious types of this environmental pollution. Our lives depend on the quality of water that we consume in different ways, from juices which are produced by the industries. Any imbalance in the quality of water would severely affect the humans' health and at the same time it would affect the ecological balance among all species. Water quality refers to the chemical, biological, radiological, and biological parameters of the water.

## LITERATURE REVIEW

This research paper focuses on Detection on water pollution and water management using smart sensors iot to ensure the safe supply of drinking water the quality should be monitored in real time for that purpose new approach IOT (Internet of Things) based water quality monitoring has been proposed. This system consists some sensors. Which measure the water quality parameter such as pH, turbidity, conductivity, dissolved oxygen, temperature.

## PROPOSED METHOD

In our proposed method, an assembled Arduino microcontroller is used as the core controller of the system. Once the code is uploaded to the microcontroller, no PC system, keyboard command, monitor is required to operate the system. The system functions automatically and independently according to the code uploaded to the microcontroller. In this system, three sensors are used to measure the essential water parameters. As it was studied from the previous researches, the most essential water parameters needed to be monitored by the average users are water pH level, water turbidity (cloudiness) and water temperature which is a measurement of the amount of the water in a container.



### *Arduino Mega Board*

Arduino is open-source electronics prototyping platform based on flexible, easy-to-use hardware and software. It's intended for artists, designers, hobbyists, and anyone interested in creating interactive objects or environments. Or more simply, you load on some code and it can read sensors, perform actions based on inputs from buttons, control motors, and accept shields to further expand its capabilities. Really, you can do almost anything. All Arduino boards have one thing in common: they are programmed through the Arduino IDE. This is the software that allows you to write and upload code.



## liquid-crystal display (LCD)

It is a flat-panel display or other electronically modulated optical device that uses the light modulating properties of liquid crystals. Liquid crystals do not emit light directly, instead using a backlight or reflector to produce images in color or monochrome. [1] LCDs are available to display arbitrary images (as in a general-purpose computer display) or fixed images with low information content, which can be displayed or hidden, such as preset words, digits, and seven segment displays, as in a digital clock.

### *The Temperature and PH sensor.*

To measure the temperature of a water tank and log it via the Arduino. The idea is to maintain the temperature of the water at 25-30C at all times. I've noticed that most applications have used a sensor such as DS18S20 or TMP35/TMP36/TMP37. but since my application requires to measure the temperature in water, I think a more suitable sensor should have a waterproof probe (or external probe). The usual way is to contain the water inside a tank / container which can transmit heat - usually metal. To the outside of this is then bonded the temperature sensor - be that a simple bimetallic strip thermostat, or a more complex temperature sensing transducer. Of course, this requires a metal tank, and that will radiate heat, which will be wasteful. Ideally you would want some form of waterproof probe.

### Figures and Tables

Water Samples	Readings		
	pH	Turbidity	Temperature
Water Sample 1	6.5	3.54NTU	18-20 C
Water Sample 2	4.4	3.9NTU	18-20 C
Water Sample 3	7.3	2.5 NTU	18-20 C

## CONCLUSION AND FUTURE SCOPE

In this work, the design and demonstration of a prototype remote, automatic, portable, real time, and low cost water quality monitoring system is described. In this system, low cost components i.e. microcontroller, LCD screen and other components are used to achieve the objectives of the proposed design with acceptable accuracy. Compared to the previous related works, the cost of the system prototype is considerably low. To ensure the portability of the device, a self-made,

small size Arduino microcontroller is used. The developed system was tested under different conditions, with solution of water with different impurities, and in different periods of time. The results of the test for all times have been successful. We conclude that all the objectives of the proposed system have been achieved. To test more parameters of the water quality for some applications, other sensors can be included in the system. The system has wide application and it is usable and affordable by all categories of users.

#### **REFERENCES**

1. Real-Time River Water Quality Monitoring System- International Journal of Engineering Research & Technology (IJERT)
2. Real-Time Water Quality Monitoring System -International Research Journal of Engineering and Technology (IRJET)