

## A REVIEW ON REAL TIME WATER QUALITY MEASUREMENT USING GSM MODULE

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### ABSTRACT

*The main goal of this project is to develop a real time water quality check. Previously we used method of testing Turbidity, PH & Temperature is to collect samples manually and then send them to laboratory for analysis and get the final result. It take much time to check the quality of water However, it has been unable to meet the demands of water quality monitoring today. So a block of Monitoring of Turbidity, PH & Temperature of Water quality has been developed. The system consists of Turbidity, PH & Temperature sensor for water quality testing, single-chip microcontroller data acquisition module, information transmission module, monitoring center and other accessories. Turbidity, PH & Temperature of water are automatically detected under the microcontroller chip simultaneously. The chip gets the data, and then processes and analyzes them. After that, the data are instantaneously sent to monitoring center by GSM network in the form of SMS. If the quality of water is not upto the mark, the data will be sent to monitoring center and management's mobile in the same way at the same time. It is convenient for management to take corresponding measures timely and be able to detect real-time situation of water quality remotely. The system has realized the automation of water quality monitoring intelligence of data analyzing and networking of information transferring. It is characterized by advantages of shortcut, accuracy and using manpower and material resources sparingly.*

**KEYWORDS:** GSM, pH, SMS, Turbidity, Temperature, etc.

### I. INTRODUCTION

Today we are living in modern era, where we enjoy the every stage of life but it has some negative impact also more and more serious problems of environment arise. Water pollution is one of in these problems. Routinely monitored parameters of water quality are temperature, pH, turbidity, conductivity and so on. Previously we used common method to collect the water from different sources and then send to labs to check the quality of water. This method takes too much man power and material resource, and has the limitations of the samples collecting the aging of experiment equipment and other issues. We can solve this problem by using different sensors. It can transfer no power information into electrical signals. It has many special advantages such as good selectivity, high sensitivity, fast response speed and so on. According to these characteristics and advantages of sensors, Monitoring of Turbidity, PH & Temperature of Water is designed and developed. It bases on SMS (Short Messaging Service) in the GSM (Global System for Mobile Communications) network to instantaneously transfer the collected data to the management. With the help of these sensors we can block the impure water supply.

### II. LITERATURE SURVEY

**Nazleeni Samiha Haron, et.al., [1]:** This research paper proposes an architecture for implementing a water quality monitoring system for the aquaculture industry. The system would enable monitoring of the water quality remotely via GSM. Conventional method used by aqua farms requires technical staff

to visit ponds at designated time and perform manual testing on the water quality. Consequently, the technique consumes a lot of time and effort. This research project would focus on developing a prototype that can evaluate data collected through three criteria: Dissolved oxygen level, pH level, and temperature level. The system would also be able to send alert messages upon detecting degradation of water quality in the pond via SMS.

**Mijović S, et.al., [2]:** This paper reports on the automatic stations for monitoring river water quality in Serbia. One automatic station observing basic parameters such as temperature, pH value, dissolved oxygen concentration and electro conductivity was established on the river Kolubara, a tributary of the river Sava. Two more automatic stations were installed on the river Tisa, a tributary of the Danube, with a higher number of parameters – in addition to basic parameters there were sensors for turbidity, ammonium ion and chlorophyll. Build-up of the early warning system is in the design phase, and consists of four automatic water quality stations on the main watercourses – the rivers Sava, Danube and Tisa.

**Wu Xiaoqing, et.al., [3]:** This paper reports the water quality may be an advanced term to explore. The standard of water depends on such a lot of things. We've used many thought parameters in conjunction with one another to work out the water's quality. These include: pH, turbidity, conductivity, total dissolved solid and temperature. Since the standard technique of water quality measuring isn't economical thus there was a necessity to develop a system which is able to measure the standard of water in real time and also the system must be economical, correct and low price. The water quality measuring system makes use of multiple sensors, information acquisition module and data transmission module. Information acquisition module includes microcontroller 8051. Data transmission module includes GSM module. There are numerous sensors that measures temperature, turbidity, pH, conductivity and total dissolved solid present in the water. This technique conjointly uses ADC. The measured values are then transmitted to the watching centre via GSM; it's conjointly shown on LCD by the microcontroller. The system has the advantage of potency, accuracy and low price.

**Akanksha Purohit, et.al., [4]:** In this paper author describes the conventional technique of measuring the quality of water is to gather the samples manually and send it laboratory for analysis, but this technique is time overwhelming and not economical. Since it's not feasible to take the water sample to the laboratory after every hour for measuring it's quality. The water quality measuring system can measure the essential qualities of water in real time. The system consists of multiple sensors to measure the standard of water, microcontroller and GSM to send the information to the watching centre. It's a true time system which is able to endlessly measure the standard of water and can send the measured values to the watching centre when each predefined time. The system relies on microcontroller 8051 and GSM.

**Prof.Sachin S.patil, et.al., [5]:** In this paper author describes the rapid development of the economy, more and more serious problems of environment arise. Water pollution is one of these problems. Routinely monitored parameters of water quality are temperature, pH, turbidity, conductivity, dissolved oxygen (DO), chemical oxygen demand (COD), biochemical oxygen demand (BOD), ammonia nitrogen, nitrate, nitrite, phosphate, various metal ions and so on. The most common method to detect these parameters is to collect samples manually and then send them to laboratory for detecting and analyzing. This method wastes too much man power and material resource, and has the limitations of the samples collecting, long-time analyzing, the aging of experiment equipment and other issues. Sensor is an ideal detecting device to solve these problems. It can convert no power information into electrical signals. It can easily transfer process, transform and control signals, and has many special advantages such as good selectivity, high sensitivity, fast response speed and so on. According to these characteristics and advantages of sensors, Monitoring of Turbidity, PH & Temperature of Water is designed and developed. The measured values from the sensors can be processed by the core controller. Finally, the sensor data can be viewed on internet using cloud computing.

**Kiran Patil, et.al., [6]:** In this paper author describes monitoring of Turbidity, PH & Temperature of Water makes use of water detection sensor with unique advantage and existing GSM network. The system can monitor water quality automatically, and it is low in cost and does not require people on duty. So the water quality testing is likely to be more economical, convenient and fast. The system has good flexibility. Only by replacing the corresponding sensors and changing the relevant software

programs, this system can be used to monitor other water quality parameters. The operation is simple. The system can be expanded to monitor hydrologic, air pollution, industrial and agricultural production and so on. It has widespread application and extension value.

**Akila. U, et.al., [7]:** In this paper author describes an automatic wireless system to intimate the message to concerned authority when the waste water from industries are mixed with river illegally. Water pollution is a serious problem for the entire world. It threatens the health and well-being of humans, plants, and animals. The main factor of the water pollution is industries which disposes waste water to the river illegally. In early project, the water pollution was detected by chemical test or laboratory test by using this system the testing equipment will be in stationary and samples will be given to testing equipment. In our project the testing equipment can be placed in the river. The parameters involved in the water quality determination such as the pH level, turbidity, dissolved oxygen and Temperature. In the Proposed water quality monitoring system the pH and Temperature sensors will be kept in the river. The output of all the sensors are in analog. It is important to convert into digital value. So all the sensed value from the sensor will be given to the ARDUINO board. After converting, the values are compared to the threshold value. In case inference value above threshold value, the automated warning SMS alert will be sent to the Pollution Control Board via GSM.

**Mithila Barabde, et.al., [8]:** The paper addresses about developing an efficient wireless sensor network (WSN) based water quality monitoring system, which examines "water quality", an important factor as far as, irrigation; domestic purposes; industries; etc are concerned. Water pollution can be easily detected by this system, which will help in controlling it. Overall the proposed execution of high power Zigbee based WSN for water quality monitoring system offering low power utilization and low cost is presented. Another important fact of this system is the easy installation of the system that is the base station can be placed at the local residence close to the target area and the monitoring task can be done by any person with very less training at the beginning of the system installation. Performance modelling is one important aspect in different environment to be studied in the future as different kind of monitoring application requires different arrangement during system installation.

**Pradeep kumar M, et.al., [9]:** In this paper author describes monitoring of Turbidity, PH & Temperature of Water makes use of water detection sensor with unique advantage and existing GSM network. The system can monitor water quality automatically, and it is low in cost and does not require people on duty. So the water quality testing is likely to be more economical, convenient and fast. The system has good flexibility. Only by replacing the corresponding sensors and changing the relevant software programs, this system can be used to monitor other water quality parameters. The operation is simple. The system can be expanded to monitor hydrologic, air pollution, industrial and agricultural production and so on. It has widespread application and extension value.

**Priyanka N. Bande, et.al., [10]:** In this paper author describes Water quality measurement system measures the parameters of water like pH, turbidity, temperature, conductivity, total dissolved solids and dissolved oxygen in order to detect the quality of water for deciding whether it is safe for drinking or not. From existing techniques available for quality measurement sensor based system is efficient, economical, convenient and fast than the traditional method. The sensor based system also has good flexibility as only by replacing sensors and small change in software programming this system can be used for measuring other water quality parameters as per their applications in industry or agriculture.

### III. CONCLUSION

By using multiple sensors we can check the quality of water by use of GSM module not only check but also block the supply of impure water. Since the system is automatic therefore it is low in cost and does not require man power so time and powers both are save. So the water quality testing is likely to be more feasible in many ways. The system has good flexibility. It has widespread application and extension value

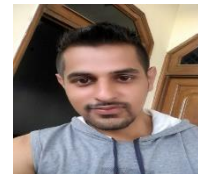
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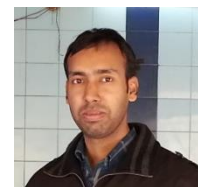
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