

## **Water Quality Monitoring System Implemented With IoT**

Ahmed Abbas Fadel , Mohamed Ibrahim Shujaa, Department of Computer Engineering Techniques, Middle Technical University (MTU), Iraq proposed a Water treatment monitoring systems are presently divided into manual and dynamic systems. Due to, the constant changes in water, either due to seasonal changes in water chemistry or due to the operative conditions of the industrial environment, the dynamic systems have to be utilized by the water manufacturers. However, water is very beneficial for life and human health, therefore to reduce the endangerment of pollution, by improving and increasing the plant operation in addition to production. This paper suggests a new technique for water factory manufacturers by adopting wireless sensor nodes. The monitor node connected with a microcontroller device using Esp32 as transmitter and receiver nodes. The node sends its statues over the wireless network utilizing a defined internet protocol (IP). The proposed system shows its effectiveness in water monitoring systems through synchronous water monitoring and simple configuration compared to traditional systems

Kartik Maheshwari , Adrija Chakraborty proposed a Monitoring the quality of water and its proper management is crucial for any industrial and economic application. The global shortage of water demands a sustainable solution to optimize its usage. The Internet of Things provides a robust and cost-effective solution for real-time monitoring of various parameters of water. The paper aims to implement an intelligent water quality monitoring system with the aid of IoT. The proposed system was successfully implemented to determine the turbidity, TDS, flow rate and the level of water for a given sample. The data obtained from the sensors are uploaded to the ThingSpeak dashboard for online monitoring purpose. Besides, an SMS alert is sent to the user whenever the turbidity and TDS values have crossed the threshold limit defined for good quality water

Varsha Lakshmikantha, Anjitha Hiriyanagowda, Akshay Manjunath, Aruna Patted, Jagadeesh Basavaiah\* , Audre Arlene Anthony a Department of Electronics and Communication Engineering, Vidyavardhaka College of Engineering, Mysuru, India proposed a Pollution of water is one of the main threats in recent times as drinking water is getting contaminated and polluted. The polluted water can cause various diseases to humans and animals, which in turn affects the life cycle of the ecosystem. If water pollution is detected in an early

stage, suitable measures can be taken and critical situations can be avoided. To make certain the supply of pure water, the quality of the water should be examined in real-time. Smart solutions for monitoring of water pollution are getting more and more significant these days with innovation in sensors, communication, and Internet of Things (IoT) technology. In this paper, a detailed review of the latest works that were implemented in the arena of smart water pollution monitoring systems is presented. The paper proposes a cost effective and efficient IoT based smart water quality monitoring system which monitors the quality parameters uninterruptedly. The developed model is tested with three water samples and the parameters are transmitted to the cloud server for further action

Spoorthi L , Nikhitha Kashyap , Rajatha , Priyanka M , Prof. Bhargavi K  
Department of Electronics and Communication Engineering, Vidyavardhaka  
College of Engineering, Mysuru, India proposed a Wireless communication  
developments are creating new sensor capabilities. The current developments in  
the field of sensor networks are critical for environmental applications. Internet  
of Things (IoT) allows connections among various devices with the ability to  
exchange and gather data. IoT also extends its capability to environmental issues  
in addition to automation industry by using industry 4.0. As water is one of the  
basic needs of human survival, it is required to incorporate some mechanism to  
monitor water quality time to time. Around 40% of deaths are caused due to  
contaminated water in the world. Hence, there is a necessity to ensure supply of  
purified drinking water for the people both in cities and villages. Water Quality  
Monitoring (WQM) is a cost-effective and efficient system designed to monitor  
drinking water quality which makes use of Internet of Things (IoT) technology

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Communication Engineering, Marri Laxman Reddy Institute of Technology and  
Management, Hyderabad, India. The economical and effective system of water  
quality observation is the most robust implementation of impure water. Drinking  
water could be precious for all people as water utilities face more challenges.  
These challenges arise due to the high population, fewer water resources, etc. So,  
different methods are used to monitor in the real-time water quality. To make sure  
that safe distribution of water is done, it must be observed in real time for a new  
method in the “Internet of Things (IoT)” based water quality has been projected.

Real time water quality observation is examined by data acquisition, method, and transmission with an increase in the wireless device network method in the IoT. Microcontroller and the processed values remotely to the core controller ARM with a WI-FI protocol are used to interface the measured values from the sensors. This projected the water quality observation interface sensors with quality observation with IOT setting. WQM selects parameters of water like temperature, pH level, water level and CO<sub>2</sub> by multiple different device nodes. This methodology sends the information to the web server. The data updated at intervals within the server may be retrieved or accessed from anyplace within the world. If the sensors do not work or get into abnormal conditions, then a buzzer will be ON.

A.N.Prasad, K. A. Mamun, F. R. Islam, H. Haqva School of Engineering and Physics University of the South Pacific Laucala, Fiji Islands — 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. Fiji Islands are located in the vast Pacific Ocean which requires a frequent data collecting network for the water quality monitoring and IoT and RS can improve the existing measurement. This paper presents a smart water quality monitoring system for Fiji, using IoT and remote sensing technology.

S. Nalini Durga<sup>1</sup> , M. Ramakrishna, G. Dayanandam Research Scholar, School of Sciences, Sri Padmavathi Mahila Visvavidyalayam, Tirupathi. India Water is the most precious and valuable resource. With the increase in population, availability of clean water has become a problem. Today, water-supply department as well as common man is facing problems in real-time operations like water distribution and conservation efficiency. Therefore it is important to find a solution to address water wastage through efficient water monitoring and

control system. In this paper, the problem is solved through autonomous water tank filling system using IoT where in embedded sensors are used to monitor the tank status along with some other key attributes like power supply, incoming water supply in real-time. Our intention of this research work was to establish a flexible, economical, easy configurable and most importantly, a portable system which can solve our water wastage problem along with saving the electrical energy. This enhances the efficiency of water distribution and reduces wastage.

Sefali Surabhi Rout<sup>1</sup> , Hitesh Mohapatra<sup>2\*</sup> , Rudra Kalyan Nayak<sup>3</sup> , Ramamani Tripathy<sup>4</sup> , Dhiraj Bhise <sup>5</sup> , S.P.Patil<sup>6</sup> , Amiya Kumar Rath<sup>7 1,2\*,7</sup> Department of CS&E, Veer Surendra Sai University of Technology, Burla, Sambalpur-768018, OD, India <sup>2\*,3</sup>Department of Computer Science and Engineering, Koneru Lakshmaiah Education Foundation, Vaddeswaram-522502, Guntur, AP, India Conservation of water in urban areas is an ongoing challenge in which technology like IoT and WSN is playing a very crucial role. Studies show that 54% of India is facing absolute water scarcity or high economic water stress. To address this challenge the forecasting and monitoring of water consumption along with effective management and distribution are important. This paper implements the seasonal threshold constraint on water distribution which conserves a significant amount of water loss over uniform supply around the year by considering end-user behavior changes according to the season. The results have been confirmed through simulation of the proposed algorithm Weather-based Smart Water Monitoring (WSWM). This extensive study only suggests a possible alternative approach to design the water distribution system to conserve water. However, more work is required for achieving an optimized approach for sustainable urban water management

Smart Meter for Water Utilization using IoT D.Anandhavalli<sup>1</sup>, K.S. Sangeetha<sup>2</sup>, V. Priya Dharshini<sup>3</sup>, B. Lukshana Fathima proposed Smart water meter is a device that measures the amount of water consumed by householders who have the device fitted within their premises. Water conservation is a big issue in many apartments. A common meter is fitted and cumulative consumption amount is shared among households where they are being charged more than what is to be paid. There are several idea to overcome this issue. In this paper we have proposed a solution to this issue in which a device is used to calculate the flow rate and quantity of water consumed by the householders and send it to the cloud to monitor the consumption of water.

cili Yanga \*, Shuang-Hua Yangb , Ewa Magierac , Wojciech Froelichc , Tomasz Jachc , Chrysi LaspidouAs proposed the water resource is becoming scarce, conservation of water has a high priority around the globe, study on water management and conservation becomes an important research problem. People are increasingly becoming more individual households, which tend to be less efficient, requiring more resources per capita than larger households. In order to address these challenges, this paper presents the achievements of monitoring domestic water consumption at the appliance level and intervening people's water usage behavior which have been made in ISS-EWATUS ([www.issewatus.eu](http://www.issewatus.eu)), an European Commission funded FP7 project. The water amount consumed by every household appliance is wirelessly recorded with the exact consumption time and stored in a central database. People's water consumption behavior is likely affected by the real-time water consumption awareness, instant practical advices regarding water-saving activities and classification of water consumption behavior for individuals, all of which are provided by a decision support system deployed as a mobile application in a tablet or any other mobile devices. Only the enhanced water consumption awareness is presented in this paper due to the space limitation. The integrated monitoring and decision support system has been deployed and in use in Sosnowiec in Poland and Skiathos in Greece since March 2015. The domestic water consumption monitoring system at appliance level and the local DSS for affecting people's water consumption behavior are innovative and have little seen before according to the knowledge of the authors.