**IOT BASED RIVER WATER QUALITY MONITORING**

ABSTARCT:

Smart solutions for water quality monitoring are gaining importance with advancement in communication technology. This paper presents a detailed overview of recent works carried out in the field of smart water quality monitoring. Also, a power efficient, simpler solution for in-pipe water quality monitoring based on Internet of Things technology is presented. The model developed is used for testing water samples and the data uploaded over the Internet are analyzed. The system also provides an alert to a remote user, when there is a deviation of water quality parameters from the predefined set of standard values.

SYSTEM ARCHITECHTURE:

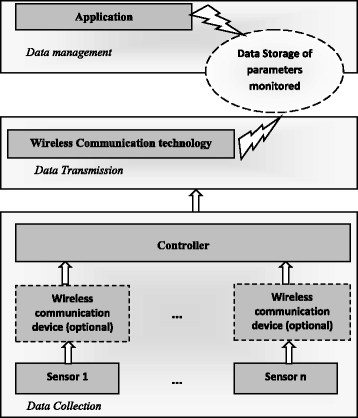
This system is consist different sensors such as Turbidity, TDS (Total Dissolved Solids), pH, Water Flow Sensor to monitor different water quality parameters. That data is send to Arduino, then it collects that data processed it. After that all data is send to cloud database through GSM module. As a result of this all these data can be accessed using Smart Phone/PC using internet.

PH SENSOR:

The pH of a solution is the measure of the acidity or alkalinity of that solution. The pH scale is a logarithmic scale whose range is from 0-14 with a neutral point being 7. Values above 7 indicate a basic or alkaline solution and values below 7 would indicate an acidic solution. It operates on 5V power supply and it is easy to interface with arduino .The normal range of pH is 6 to 8.5.

Turbidity sensor:

Turbidity is a measure of the cloudiness of water. Turbidity has indicated the degree at which the water loses its transparency. It is considered as a good measure of the quality of water. Turbidity blocks out the light needed by submerged aquatic vegetation. It also can raise surface water temperatures above normal because suspended particles near the surface facilitate the absorption of heat from sunlight.

[](https://media.springernature.com/full/springer-static/image/art:10.1186/s40713-017-0005-y/MediaObjects/40713_2017_5_Fig1_HTML.gif)

Block diagram of Smart water Quality monitoring

Temperature sensor:

Water Temperature indicates how water is hot or cold. The range of DS18B20 temperature sensor is -55 to +125 °C. This temperature sensor is digital type which gives accurate reading.

LITERATURE REVIEW:

Nikhil Kedia entitled “Water Quality Monitoring for Rural Areas-A Sensor Cloud Based Economical Project.” Published in 2015 1st International Conference on Next Generation Computing Technologies (NGCT-2015) Dehradun, India. This paper highlights water quality monitoring methods, sensors, embedded design, and information dissipation procedure, role of government, network operator and villagers in ensuring proper information dissipation. It also explores the Sensor Cloud domain. While automatically improving the water quality is not feasible at this point, efficient use of technology and economic practices can help improve water quality and awareness among people.[1] Jayti Bhatt,Jignesh Patoliya entitled “Real Time Water Quality Monitoring System”.This paper describes 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. In this paper, we present the design of IOT based water quality monitoring system that monitor the quality of water in real time. This system consists some sensors which measure the water quality parameter such as pH, turbidity, conductivity, dissolved oxygen, temperature. The measured values from the sensors are processed by micro controller and this processed values are transmitted remotely to the core controller that is raspberry pi using Zigbee protocol. Finally, sensors data can view on internet browser application using cloud computing.[2] Michal Lom, Ondrej Pribyl, Miroslav Svitek entitled “Industry 4.0 as a Part of Smart Cities”. This paper describes the conjunction of the Smart City Initiative and the concept of Industry 4.0. The term smart city has been a phenomenon of the last years, which is very inflected especially since 2008 when the world was hit by the financial crisis. The main reasons for the emergence of the Smart City Initiative are to create a sustainable model for cities and preserve quality of life of their citizens. The topic of the smart city Water Quality Monitoring System Based on IOT.

INTERNET OF THINGS (IOT):

The whole design of the system is based mainly on IOT which is newly introduced concept in the world of development. There is basically two parts included, the first one is hardware & second one is software. The hardware part has sensors which help to measure the real time values, another one is arduino atmega328 converts the analog values to digital one, & LCD shows the displays output from sensors, Wi-Fi module gives the connection between hardware and software. In software we developed a program based on embedded c language. The PCB is design at first level of construction and component and sensors mounted on it. BLYNK app is installed in the android version to see the output. When the system get started dc current given to the kit and arduino and WIFI gets on. The parameters of water is tested one but one and their result is given to the LCD display. The app went provided with hotspot gives the exact value as on LCD display shows on kit. Thus like this when the kit is located on any specific water body and WIFI is provided we can observe its real time value on our android phone anywhere at any time.

CONCLUSION AND FUTURE SCOPE CONCLUSION:

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 hydro logic, air pollution, industrial and agricultural production and so on. It has widespread application and extension value. By keeping the embedded devices in the environment for monitoring enables self protection (i.e., smart environment) to the environment. To implement this need to deploy the sensor devices in the environment for collecting the data and analysis. By deploying sensor devices in the environment, we can bring the environment into real life i.e. it can interact with other objects through the network. Then the collected data and analysis results will be available to the end user through the Wi-Fi.

FUTURE SCOPE:

1. Detecting the more parameters for most secure purpose 
2. Increase the parameters by addition of multiple sensors 
3. By interfacing relay we controls the supply of water

REFERENCES: