Water Quality Monitoring To Conserve Water Resources Using IOT

Gagana L[1], Rajendra M[2]
[2]Assistant Professor
[1, 2] Atria Institute of Technology, Bangalore, India

Abstract- *Water is fundamental source on earth which is more needed to human life and the health perceptiveness and also most importance source for all living begins on the earth. To establish a good quality of water, it requires a monitoring system which is being developed based wireless sensor network and with the help of IoT. Water plays a big important role agricultural purpose and also for drinking, recently in order to supply a support to farmers such as growth of crops and observation system physical property of water, humidity and water supply. Wireless sensor network are used to measure water quality by sensing the change of pH. To supervise quality water over various sites as a actual time application, a base station and administer sensor nodes are recommended a wireless application like Internet Of Things (IoT) is used to associated with the nodes and base station. To design and utilize this model to power-driven by solar cell utilization in this challenging work. Through WSN various information accumulated by various sensors at node side pH, Turbidity, oxygen are sent base station. At the base station data it is been collected and displayed as visual in text file. The gain in this system is low power consumption, no carbon discharge, more flexible to outspread at remote site.*

Keywords- Sensors,Wi-Fi module, Alarm, AWS, Micro controller, Power Supply,Total Liquefied Solids(TLS), Conduction Water Quality Factor (WQFs).

I. INTRODUCTION

In present generation due to lots of economical development, invention, transformation, rapid growth of industries andactories, but in these days due to more pollutions, global warming, weather condition, atmospheric condition. because this there's no risk-less drinking water supply world's population. The need for user participation in maintaining water quality and looking at other aspects like hygiene, environment sanitation, storage and disposal are critical element to maintain the quality of water resources.

Where water supply released from the factory can be highly contaminated active presence of chemical components, that water also sent for ingestionuse without any proper treatment H2O in many undeveloped areas and countries.Various biological field study constant quantity temperature, pH, oxygen density, turbidity, so on from water supplying can be collected by these systems using different sensors. Evolution of Internet of Things application provides us approach to real time data acquiring, transmission processing. In general user get real time water evaluate data from remote, but in this system there are several nodes and a base stations where each node contains a sensors and nodes are distributed in different water bodies. By those sensors in water the collected date is sent to base station via water Channel.

II. THE LITERATURE REVIEW

"In Un-Ionized ammonia detection system for water quality monitoring"by Yee Ming Chung, Z. Abdul Halim and Razemy Raffay (2012) presents a new system by using a programmable system on chip and non-destructive types of measurement instruments. The author says there are four water environment parameters are measured, namely, pH, temperature, dissolved oxygen, and ammonium. The author says by using some algorithms they are going to calculate the UIA using data from measurement instruments. According to their perspective, they have designed the system to measure UIA in freshwater at 95% confidence level. The author says that the data from the system are monitored and recorded using a data acquisition system.

"**Water monitoring system using Arduino with LabVIEW"**by Yogesh K. Taru and Anil Karwankar (2017) present the system to develop, implement, monitor and control some parameter of water such as pH level, temperature, and turbidity.

Authors say the main objective of this system is remotely monitors and control of water quality. The system built with Arduino UNO R3 board using Atmega328as the main controlling unit. LabVIEW is used as a Display unit in the system. According to the author, this system is more economical system and reliable, flexible for water monitoring.

III. EXISTING SYSTEM

Sensors to detect the hydrocarbons, chemical and metal content in the soil can be combined into a soil examining and for monitoring the soil quality and waste material content. And sensors for detection pH, conduction, liquid oxygen, turbidity, etc. can be used for measurement the water quality in the rivers, ponds, lakes etc. Since the work is already done with the detection element like temperature sensor, pH sensor, and few has to check manual short text down the outcome that's been displayed in LCD. And it make more time consumption to note down the results of the improvement quantity that displayed. And it take more time to create the all-purpose results of the change of state processes.

IV. PROPOSED SYSTEM

By utilization fundamental measure synthetic reasoning material property in water which can undertake problem solving. Conductivity sensor utilized in solving the material process of the water can be used to intake utility-grade and also checks the conduction content in the water and help to modify the attribute of water which unfit drinking. PH detector investigating pH level water and the content will be displayed in LCD. Once the betterment is done the device sound mechanically to check for the results that's been displayed, no need to check semi-automatic for the result which take much time consumption to give the results. Wi-Fi module is used to associate the AWS cloud for storing and recollection of the data. By using Wi-Fi and Amazon Web Service we can be used to store thedata and retrieve it whenever we need.

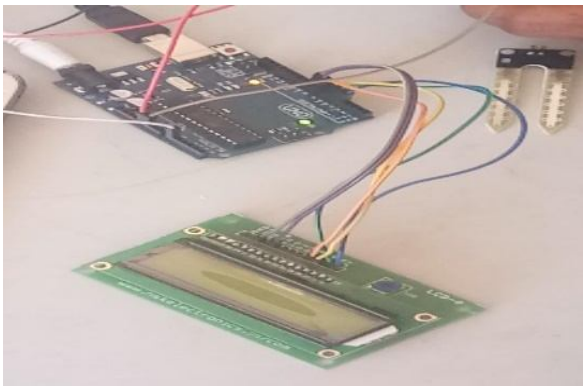

Fig-1 :-Connection of sensors with ardino UNO board and LCD Display.

V. METHODOLOGY

In This project system will be having remote monitoring ability and the observance system linked with the server and database. Conductivity Sensor this System Controller is user interface with turbidity sensor, PH sensor, LCD, Temperature sensor, or, Water Level sensor and Wi-Fi module. As soon as connects power supply to the system controllers and reads all sensor information continuously and display it in LCD and related to data will be sent to Wi-Fi module preserve display information in cloud. Turbidity sensor detects water physical process in case water is not clear due to dirt or the dissolution agent present in the water then controller will rise the alarm and stops water to pump. PH sensor is after the text alter has completed, the paper ready the physical property used observe whether water is acid or alkaline or neutral and to reference number of dis-solvent or metallic particles dissolved in water conductivity sensor is used when metallic ions are more then conductivity is more.This water is not unfit for drinking. Controller will rise the alarm when conductivity is more. All detects message sent to cloud saved in Excel sheet approach departed collection of waste water data.

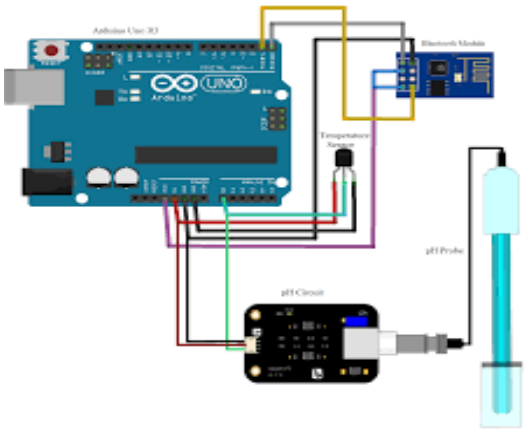

Fig-2 :-pH sensor

pH sensor analysis H ion density level water**.** pH scale is technological device usedcheck hydrogen-ion activity in water-based mixture, indicating its alkalinity declared as pH.

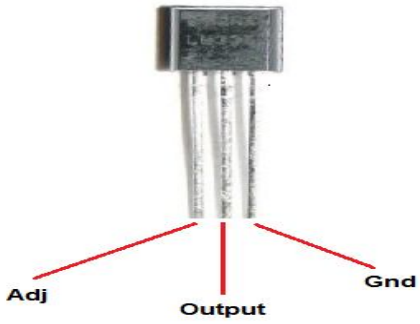

Fig-3 :-Temperature Sensor

LM335 sensor is accuracy of temperature sensor which can be easily progressive. It has breakdown voltage

directly proportional absolute physical property at 10mV/°K. LM335 has a low dynamical electric resistance. It can used any type of fundamental quantity sensing in range of -40°C to 100°C.

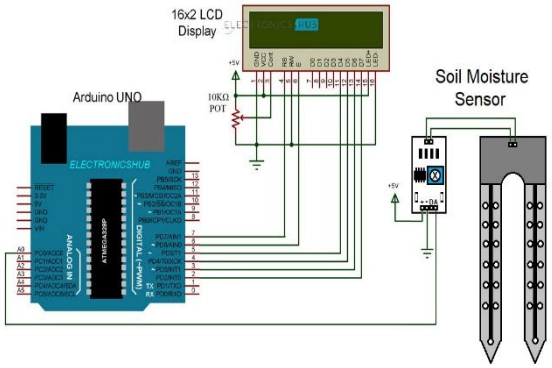

Fig-4 :-Conductivity Sensor

A conductivity sensor checks the ability of a dis-solvent to behaviour an electrical current. It is existence ions solution that let solution to be semi-conductive. greater density ions, greater conductivity.

Fig-5 :-Turbidity Sensor

Turbidity sensors active quantity low-density distributed, supported solid-state liquid.Its been utilized stream, waste liquid, waste substantial reference, control instrumentation for settling ponds, material entity transport, and research lab measurements. measuring activity low-density that is been distributed by the supported solid-state in liquid.

Fig-6 :- Thing-speak Cloud

Thing-speak is an Internet Of Things analytic level work that allows collective, picture and examine active data streams in the cloud. Thing-speak is often used for example and proof of content Internet Of Things systems that necessitate analytical.

VI. BLOCK DIAGRAM

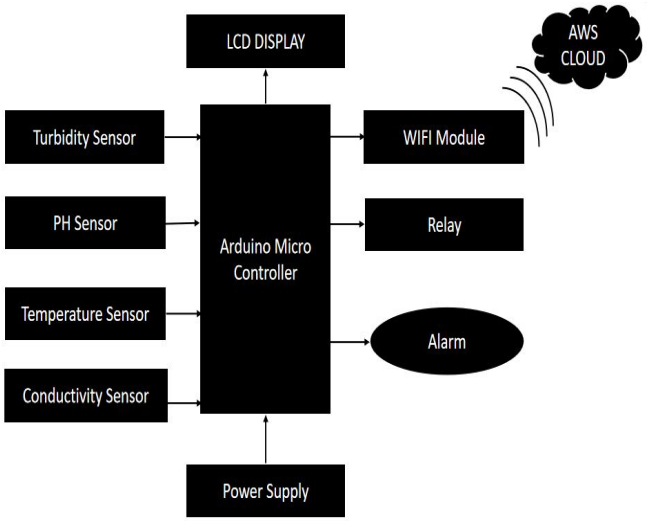

Fig:Water Quality Monitoring And Purification System.

VII. CONCLUSION

Sequential followH2O impurity state remote region collect by observation choice water & collecting data. This system not only provides comprehensive assessment of water environment but also can quickly discover instant water pollution accidents or natural disasters, legal document the improper water quality information to monitoring center by faster communication network and provides graphical representation for the decision making section to range the status of the water. Our proposed system predicts the solution to this issue to analysis the water contaminated with waste particles and to purify it using IOT technology.

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