

IOT BASED PUBLIC WATERING SYSTEM WITH QUALITY MEASUREMENT

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Abstract:

Water contamination is one biggest factor for no green globalization. To prevent that and make the green globalization we need to monitor the water quality. We implement a system IoT based Public Watering System with Quality Measurement for continuous water quality measuring and alerting. In this proposed paper we implemented Internet of things based system with pH sensor, Water quality sensor, Conductivity sensor, Flow sensor, all are integrated to the novel micro controller NodeMCU model and for IoT we used ESP8266 module for server creation and alerting to the public government dashboard.

Keyword: pH sensor, Water quality sensor, Conductivity sensor, Flow sensor, NodeMCU model, IOT- module.

I. INTRODUCTION

Globalization increases in world that leads to many implementations in industries as well. Due to that it harms to the green global society. This globalization pollutes the natural sources in that one of very import to live human is water. All industries releasing their wastage in rivers and ponds we are collection the water from them it's very damageable to health. Recent days water quality demands very huge requirements for better human life. So that we implemented a novel architecture for preventing this water pollution called water man agent and quality ensuring system globally. There are many parameters for measuring of water quality is Ph value, flow measurement, color of the water, dirtiness of the water, heat and cold of the water which leads to analysis of quality of the water. For this better improvement and enhancement we can avoid the water related diseases diarrhea, cholera. This paper was structured as in below sections. In this proposed paper we implemented Internet of things based system with pH sensor, Water quality sensor, Conductivity sensor, Flow sensor, all are integrated to the novel micro controller NodeMCU model and for IoT we used ESP8266 module for server creation and alerting to the public government dashboard. Section II inform the related work which has done in previously by other scientists, section III informs the existing method and disadvantages of that system. Section IV inform that proposed system that this novel system explanation. Section V informs that present methodology in this system. Section VI results and discussions and finally section VI informs the conclusion the proposed work.

II. LITERATURE SURVEY

Nikhil Kedia entitled "Water Quality Monitoring for Rural Areas-A Sensor Cloud Based Economical Project." Published in 2015 first International Conference on Next Generation Computing Technologies (NGCT-2015) Dehradun, India. This paper features the entire water quality checking methodologies, sensors, and presented structure, and data dispersal system, control of government, compose official and occupants in guaranteeing genuine data disseminating. It likewise inspects the Sensor Cloud space. While subsequently improving the water quality is beyond the realm of imagination now, efficient utilization of progression and financial practices can help improve water quality and care among people.[1] Jayti Bhatt, Jignesh Patoliya entitled "Predictable Water Quality Monitoring System". This paper portrays to guarantee the made sure about store of drinking water the quality ought to be observed constantly subsequently new philosophy IOT (Internet of Things) based water quality checking has been proposed. In this paper, we present the structure of IOT based water quality checking framework that screen the quality of water consistently. Can't be considered obviously to be a specific control, in any case unprecedented fiscal, mindful or authentic perspectives must be consolidated also. In the chance of Industry 4.0, the Internet of Things (IoT) will be utilized for the movement of inferred sharp things. Sub-parts of the thing are outfitted with their own comprehension. Included comprehension is utilized both during the storing up of a things.

III. EXISTING SYSTEM

Existing system of water quality system does not meet the required water quality parameters. This system normally has RO system for water purifying only. That's not sufficient for most level of purification. More over there is nothing for data transition for updating the public people as well as government of quality of the water we serving. Due to this no data transmitting, no accurate parameter monitoring, we come to the new innovative system or water quality measurement.

IV. PROPOSED SYSTEM

Aim of the proposed system is that monitoring the water quality and updating through internet of things. Proposed paper we implemented Internet of things based system with pH sensor, Water quality sensor, Conductivity sensor, Flow sensor, all are integrated to the novel micro controller NodeMCU model and for IoT we used ESP8266 module for server creation and alerting to the public government dashboard. This system having flow measurement sensor for measure the flow of the water whether flow stopped or flowing the drinking water for public. Flow sensor, Ph sensor, turbidity sensor all sensors integrated controlling module NODEMCU and post the data into IOT module which can make the data into server for easy of data transfer to the government. This system have the pre stage water measuring ability and higher efficiency and accurate than existing one.

V. METHODOLOGY

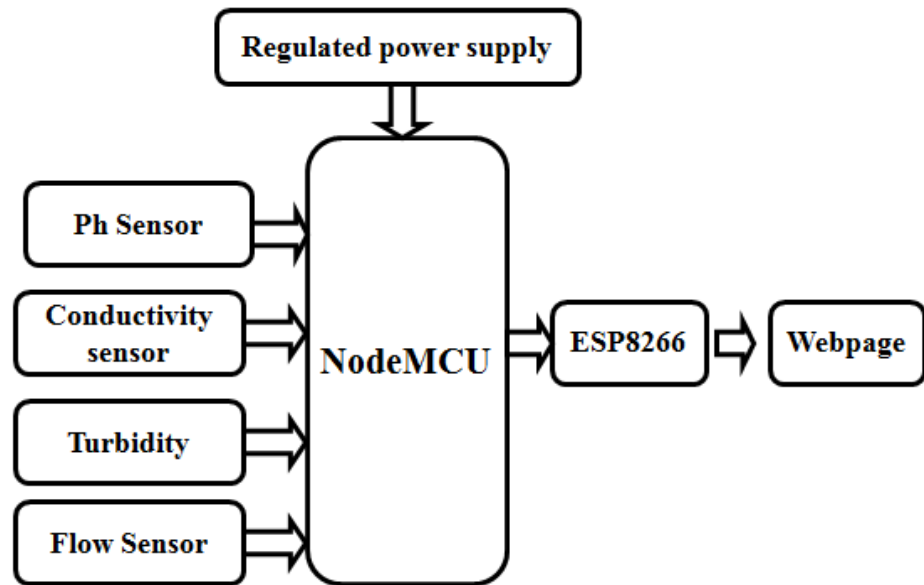


Fig.1. Block diagram

Microcontroller is the integrated of all input and out modules for process the data every individual sensor find the respective parameter of data gives to the controller like Conductivity sensor measure the temperature, Ph sensor is for acidity and base value of the sensor, turbidity for dirtiness of the water all the data gives to the NodeMCU it process data by using programming code and displays in IOT server.

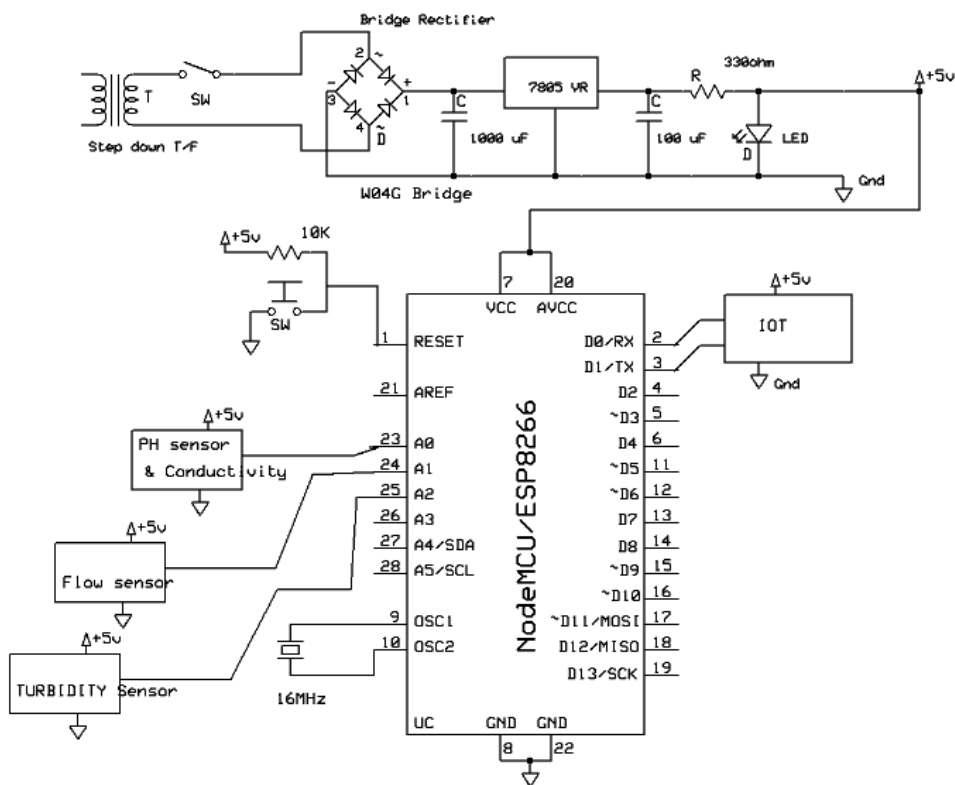


Fig.2. Schematic diagram

This schematic diagram informs that which module of the pins connected to which pins of microcontroller.

A. Regulated Power Supply:

Regulated power supply is used to produce the required operating voltage for this proposed system. Normally this system is converts 230V ac voltage to the required 5V dc voltage for system operation.

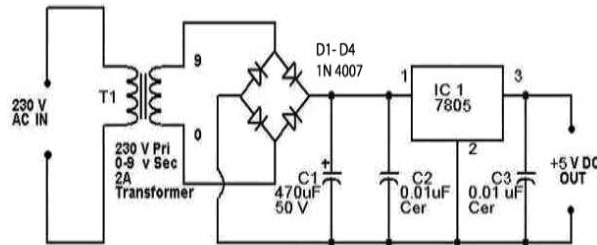


Fig.3. Regulated Power Supply

B. NODEMCU controller:

The NodeMCU ESP8266 inbuilt with ESP-12E internal IoT module. It's 32 Bit RISC processor with operating speed of 80 to 160 MHz crystal oscillator for high data speed. NodeMCU has 128 KB RAM and 4MB of Flash memory to store data and programs. Its high processing power with in-built Wi-Fi / Bluetooth and Deep Sleep Operating features make it ideal for IoT projects. NodeMCU which have the 16 DAC pins and 1 ADC for integrating all input and output modules for processing IOT public after quality system.



Fig.4. NodeMCU

C. PH and conductivity Sensor :

Sensor used to measure the PH value of the water. This is used for identifying for water how much quantity of acidity and base value and inform to controller. Conductivity sensor is used to measure salt content in the public water system. For conductivity we are using conductivity sensor for measure there are two electrodes in that for accurate value of conductivity in water. Conductivity is from 300 to 850 ppm.



Fig.5. Ph sensor

D. Flow measure Sensor:

Flow sensor is used to measure the flow of the water. This is work basis of Hall Effect. Hall sensor is in build in that depends on the hall count this sensor give the rate of the flow of any liquid.



Fig.6. Flow Sensor

E. Turbidity Sensor:

Turbidity used to find the measure the color/cloudiness of liquid. This detects the transparency of the water. It is considered as a good measure of the quality of water. This turbidity sensor which is integrated to ESP8266 module with help of driver board for serial communication. Acquired data from turbidity sensor gives to NodeMCU controller and data post into the IOT server.



Fig.7. Turbidity Sensor

F. IOT- Module:

Internet of things used for controlling any device or monitoring the device status through internet. This proposed system we use this IOT module for taking the all parameters data and post into the cloud called server. ESP8266 modules as IOT module it can operate through wifi frequency concept.



Fig.10. ESP 8266

VI. RESULTS AND DISCUSSION

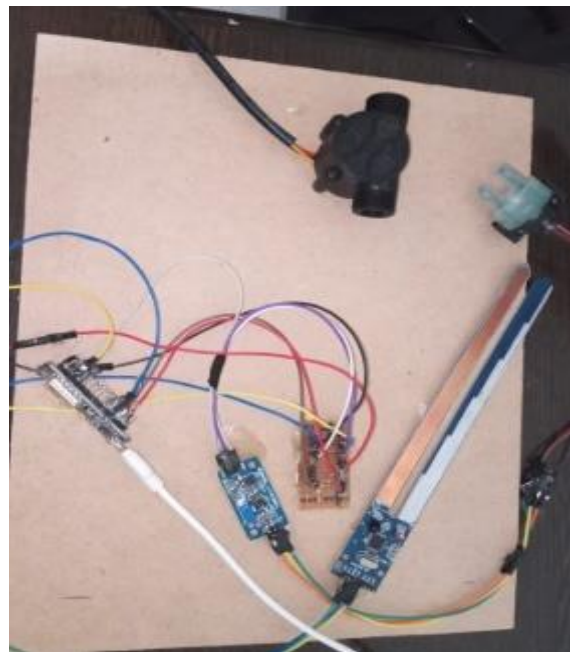
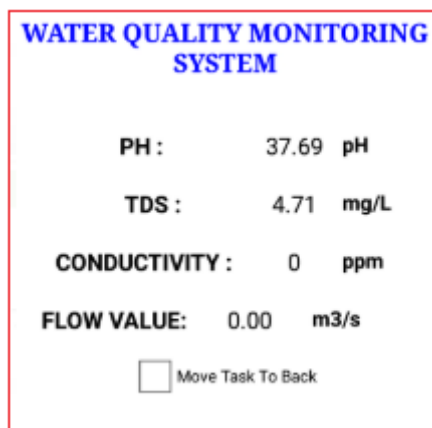


Fig.11 Output parameters

This is the output of iot water quality system obtained accurate results and contrusteded in a model way. All input and output modules are integrated to ESP8266 micro controller to process all the water parameters and upload the data into IOT.



Above figure shows the water parameters measurements of IoT water quality measurement system having Ph, TDS, Conductivity and Flow level of the public water system, measured and posted in IOT webpage.

VII. CONCLUSION

We implemented and constructed IOT water quality system with monitoring in internet done successfully in this proposed system we integrated all input modules and output modules to the microcontroller we obtained results accurately. This proposed system proves that this is efficient system than existing one. Used for public water quality maintain.

VIII. REFERENCES

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