



International Journal of Innovative Research in Computer and Communication Engineering

(An ISO 3297: 2007 Certified Organization)

Vol. 3, Issue 10, October 2015

Automatic Drinking Water Sharing and Testing

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ABSTRACT: The goal of the project is employed low price device for monitor the water qualities bother in beverage allocation systems. The pH scale price device measures the acidity or basically of water. Solutions with a hydrogen ion concentration but seven square measure aforementioned to be acidic and solutions with a hydrogen ion concentration bigger than seven square measure basic. Pure water includes a hydrogen ion concentration terribly near seven. If assume water level is a smaller amount than seven than the sensing element send info to GSM. The Dc Motor one and Dc motor a pair of mechanically operate and flow water into the actual space. The flow sensing element indicates the speed level of water and if suppose anybody thievery the water suddenly it intimate to us via GSM. If the water is contaminated for insects then it doesn't move to space it intimate concerning the contamination info to us. The PIC micro controller controls all operation. The most sensing element node consists of many in-pipes microelectronic and importance is nominative on low price, lightweight implementation, and reliable lasting operation. Such performance is fit for giant scale deployments change a device network move toward for providing temporally made information to water shoppers, water corporations, and authorities.

KEYWORDS: Peripheral interface controller (PIC), Liquid crystal display (LCD), Light emitting diode (LED), Power of Hydrogen (pH), Public works department (PWD), Global system for mobile communication (GSM)

I.INTRODUCTION

Clean beverage may be a vital resource, necessary for the health and well-being of all humans. Water utilities face new challenges in their real-time operation owing to restricted water resources, intensive budget needs, growing population, ageing infrastructure, progressively tight rules and magnified attention towards safeguarding water provides from accidental or deliberate contamination. there's a desire for higher on-line water observance systems providing existing laboratory-based strategies square measure too slow to develop operational response and don't offer tier of public health protection in real time. Speedy detection (and response) to instances of contamination is important as a result of the possibly severe consequences to human health.

Ancient strategies of water internal control involve the manual assortment of water samples at numerous locations and at totally different times, followed by laboratory analytical techniques so as to characterize the water quality. Such approaches aren't any longer thought of economical. Although, this methodology permits a radical analysis together with chemical and biological agents, it's many drawbacks: a) the shortage of period water quality data to modify important selections for public health protection (long time gaps between sampling and detection of contamination) b) poor spatiotemporal coverage (small variety locations square measure sampled) c) it's labour intensive and has comparatively high prices (labour, operation and equipment).

Therefore, there's a transparent want for continuous on-line water quality observance with economical spatial-temporal resolution. United States of America Environmental Protection Agency (USEPA) has dole out an intensive experimental analysis of water quality sensors to assess their performance on many contaminations. the most conclusion was several that a lot of that several} of the chemical and biological contaminants used have a control on many water parameters monitored together with cloudiness (TU), reaction Reduction Potential (ORP), Electrical physical phenomenon (EC) and hydrogen ion concentration. Thus, it's possible to watch and infer the water quality by sleuthing changes in such parameters.

Given the absence of reliable, in-line, continuous and cheap sensors for observance all doable biological and chemical contaminants, our approach is to live chemical science water parameters that may be dependably monitored



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with low value sensors and develop low value networked embedded systems (sensor nodes) furthermore as contamination detection algorithms to fuse these multi-sensor information so as to infer doable contamination events.

Even if this approach could suffer from some false alarms, it are often compensated/ eliminated by the massive scale preparation and also the chance of correlating the choices from numerous detector nodes that is that the topic of our future work. There's a transparent want for a shift within the current observance paradigm and this paper proposes the concept of observance the standard of water delivered to shoppers, exploitation low value, low power and small in-pipe sensors. The most contribution of this paper is that the style and development of an occasional value system which will be used at the premises of shoppers to unendingly monitor qualitative water parameters and fuse multi-parametric device response so as to assess the water consumption risk.

II.LITERATURE SURVEY

[1] Solid-state sensors for on-line observance of such water quality parameters as hydrogen ion concentration, dissolved atomic number 8 (DO), conduction, turbidity, dissolved organic carbon (DOC) and dissolved metal ions on the high special resolution were analyzed. It's been established that consecutive generation of wireless device networks is with success plus correct, cheap, sturdy and miniature solid-state sensors supported thin- or thick-film semiconductor sensing conductor (SE), which might overcome bio-fouling difficulties.

In the development of sensitive and selective nanostructure SEs, the management of their structures associate degreed morphologies plays an increasing importance as a essential issue determinant their properties. Even for nano scaled advanced chemical compound SEs structural issue remains an advanced construct. Doping semiconductor SE by another nano-oxide has been evidenced to be a awfully effective thanks to modernize appropriate properties of the SE toward higher property and better protective resistance. Results, chiefly obtained throughout studies of the doped advanced chemical compound SEs of the varied chemical sensors are used for showing the optimization of the sensors' characteristics.

[2] Observance the standard of water from the treatment plant to the shopper's faucet is essential to make sure compliance with national standards and/or World Health Organization guideline levels. The area unit variety of processes and factors moving the water quality throughout transmission and distribution that area unit very little understood. a major obstacle for gaining a close data of assorted physical and chemical processes and therefore the result of the hydraulic conditions on the water quality deterioration at intervals facility systems is that the lack of reliable and low-priced (both capital and O & M) water quality sensors for continuous observance. This paper has 2 objectives. The primary one is to gift a close analysis of the performance of a unique in-pipe multi-parameter device searched for reagent- and membrane-free continuous water quality observance in facility systems. The second objective is to explain the results from experimental analysis that was conducted to accumulate continuous water quality and high-frequency hydraulic information for the quantitative assessment of the water quality changes occurring underneath steady and unsteady-state flow conditions.

[3] Important advances are created in recent years in technologies to watch drinkable quality for supply water protection, treatment operations, and distribution system management, within the event of accidental (or deliberate) contamination. Reports ready through the world Water analysis Coalition (GWRC) and US environmental Protection Agency (USEPA) agree that whereas several rising technologies show promise, they're still some years from being deployed on an oversized scale. Further underpinning their viability could be a got to interpret information in real time and implement a management strategy in response. This review presents the findings of a global study into the state of the art during this field.

[4] Novel sensors supported the mixture of planar meander and inter-digital magnetism sensors for watching the extent of contamination in water sources. A series of experiments was conducted to see the sensors characteristics. 2 nitrates forms, specifically atomic number 11 nitrates and ammonia nitrates, were mixed in many completely different ratios dissolved in one L of H₂O and were wont to observe the response of the sensors.

[5] A collection of sensors for water quality measure has been developed. It consists of a multisensory designed to live the subsequent parameters: pH scale, temperature, dissolved gas, conduction, oxidoreduction potential and muddiness. The system has been settled in thick-film technology, victimization once doable commercially accessible serigraphic pastes. The multisensory is enforced in unaltered moveable or stationary instrumentation for water quality watching. The technology utilized in the multisensory implementation provides basic properties of miniaturization, cheap preciseness and low price. The entire system conjointly includes electronic acquisition, signal acquisition and computing capabilities.

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III. EXISTING SYSTEM

A set of sensors for water quality measuring has been developed. It consists of a multisensory designed to live the subsequent parameters: pH, temperature, dissolved O, conduction, chemical reaction potential and murkiness. The system has been settled in thick-film technology, victimization once potential commercially obtainable serigraphic pastes. The multisensory is enforced in unmoved transportable or stationary instrumentation for water quality observation. The technology employed in the multisensory implementation provides basic properties of shrinking, cheap preciseness and low value. The entire system additionally includes electronic acquisition, signal learning and computing capabilities. Techniques are employed in order to scale back the procedure time. A restricted range of on-line, reagent-free water observation systems square measure commercially obtainable however these systems square measure large. Such systems will take frequent samples of the water quality at a really restricted range of locations. On similar lines, a multiparametric sensing element array supported semiconductor atomic number 44 chemical compound nanostructures.

IV. PROPOSED SYSTEM

The water run into the tank and it'll be full means that the dc motor off mechanically. If suppose blocked in means of the cistern or anyplace then water can't move toward to alternative half the wire are going to be connected through the pipe therefore it notice that half contain blocked and it intimate to US. The pH sensing element sense the substance level of the water if there's extraordinary or below seven means that it intimate to US via digital display. Motor one mechanically ON and it deliver water to initial space that point the Motor two are going to be OFF condition. No manual work here solely dc motor mechanically on and OFF. Then Motor two mechanically ON and rework the water into second space Motor one has be OFF condition and this data conjointly show in digital display. If suppose the water speed level is Low and if somebody uptake water by felony level means that suddenly the flow sensing element sense this data and it goes to company workplace via GSM. If the water is mixed by chemical impurities or contaminated by one thing else then motor are going to be stop and alarm are going to be ON.

V. SYSTEM OVERVIEW

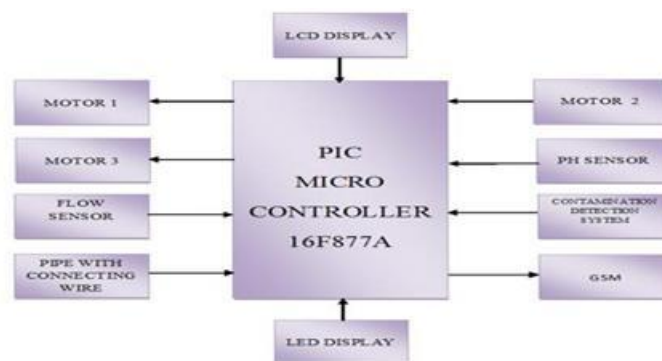


Figure1: Overall block diagram

The method of drinkable distribution system is planned. The water run into the tank and it'll be full suggests that the dc motor off mechanically. If suppose blocked in approach of the tank or anyplace then water can't move toward to alternative half the wire are going to be connected through the pipe thus it realize that half contain blocked and it intimate to North American nation. The pH scale device sense the substance level of the water if there's Olympian or below seven suggests that it intimate to North American nation via digital display. Motor one mechanically ON and it deliver water to 1st space that point the Motor two are going to be OFF condition. No manual work here solely dc motor mechanically on and OFF. Then Motor two mechanically ON and remodel the water into second space Motor one has been OFF condition and this info conjointly showed in digital display. If suppose the water speed level is Low and if somebody ingestion water by larceny level suggests that suddenly the flow device sense this info and it goes to

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VI. EXPERIMENTAL RESULTS

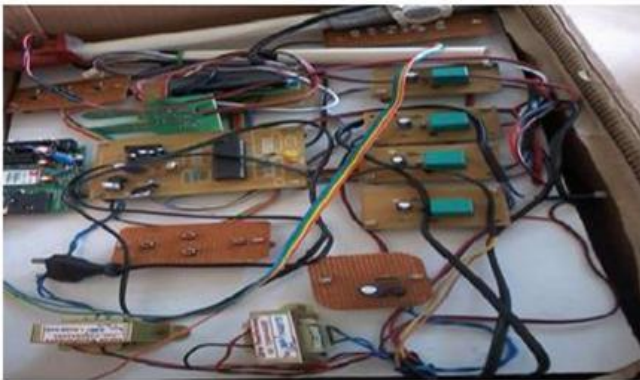


Figure.2: Experimental setup

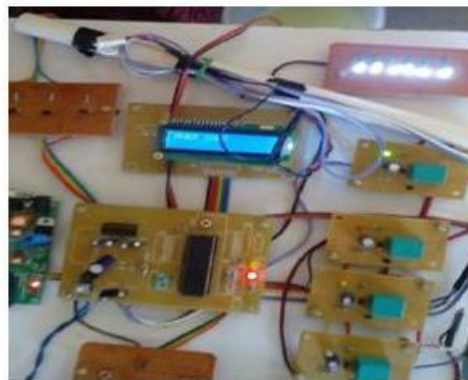


Figure.3: Contamination detection system

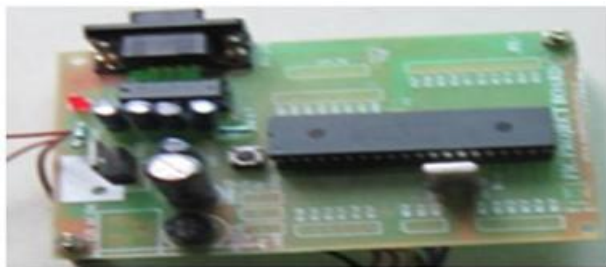


Figure.4: PIC Microcontroller

VII. CONCLUSION AND FUTURE WORK

In this planned technique low value sensing element square measure used for drinkable distribution. The hydrogen ion concentration price sensing element measures the acidity or basicity of water. The DC Motor one and DC motor two mechanically operate and flow water into the actual space. The flow sensing element indicates the speed level of water and if suppose anybody felony the water suddenly it intimate to U.S. via GSM. If the water is contaminated for insects then it doesn't visit space it intimate regarding the contamination info to U.S... In addition contamination event detection algorithms are developed and valid to modify these sensing element nodes to create call and trigger alarms once abnormalities area unit detected. The most sensing element node consists of many in-pipes chemical science and importance is mere on low value, light-weight implementation, and reliable long-standing operation.

In future, we tend to commit to investigate the performance of the event detection algorithms on alternative styles of contaminants (e.g. nitrates) and install the system in many locations of the water distribution network to characterize system/sensors response and wireless communication performance in real field deployments. Finally, we tend to commit to investigate network-wide fusion/correlation algorithms to assess water quality over the whole water distribution system.

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BIOGRAPHY

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