V.S.B.ENGINEERING COLLEGE, KARUR

Department of Computer Science and Engineering

IBM NALAIYA THIRAN

LITERATURE SUYVEY

TITLE : Real –Time River Water Quality Monitoring and Control System

TECHNOLOGY : Internet Of Things

DOMAIN NAME : Water resources

LEADER NAME : R.Ramya

TEAM MEMBERS NAME : S.Sangeetha

: S.B.Sowmiya

: P.M.Vennilavu

MENTOR NAME : Anandan D

ABSTRACT:

Current water quality monitoring system is a manual framework with a dreary cycle and is very tedious. This paper proposes a sensor-based water quality observing framework. The principal parts of Wireless Sensor Network (WSN) incorporate a microcontroller for handling the framework, correspondence framework for entomb and intra hub correspondence and a few sensors. Constant information access should be possible by utilizing remote observing and Internet of Things (IoT) innovation. Information gathered at the separated site can be shown in a visual configuration on a server PC with the assistance of Flash streaming examination through Flash MLlib, Profound learning brain network models, Belief Rule Based (BRB) framework and is likewise contrasted and standard qualities. Assuming that the gained esteem is over the limit esteem robotized cautioning SMS ready will be shipped off the specialist. The uniqueness of our proposed paper is to get the water observing framework with high recurrence, high portability, and low fueled. In this manner, our proposed framework will hugely assist Bangladeshi populaces with becoming cognizant against debased water as well as to quit dirtying the water.

INTRODUCTION:

The climate around comprises of five key components e.g., soil, water, environment, normal vegetation, and landforms. Among these water is the greatest possible level of vital component for human existence. It is likewise imperative for the steadiness of other living environments. Whether it is utilized for drinking, homegrown use, and food creation or sporting purposes, safe and promptly accessible water is the requirement for general wellbeing. So we must keep up with water quality balance. Any other way, it would seriously harm the soundness of the people and simultaneously influence the natural balance

among different species. Water contamination is a first worldwide issue which needs progressing assessment and transformation of water asset executive standard at the degrees of global down to individual wells. It has been concentrated on that water contamination is the main source of mortalities and illnesses around the world. The records show that more than 14,000 individuals pass on day to day overall because of water contamination. In many non-industrial nations, grimy or defiled water is being utilized for drinking with next to no legitimate earlier treatment. One reason for this incident is the obliviousness of public and organization and the absence of water quality observing framework which makes serious well being issues. In this paper, we portray the plan of Wireless Sensor Network (WSN) that helps to screen the nature of water with the backing of data detected by the sensors plunged in water. Utilizing various sensors, this framework can gather different boundaries from water, like pH, broke up oxygen, turbidity, conductivity, temperature, etc. The fast improvement of WSN innovation gives an original way to deal with constant information procurement, transmission, furthermore, handling. The clients can get progressing water quality data from a long way away. Presently a day's Internet of things (IoT) is an imaginative innovative peculiarity. Today is molding's reality and is utilized in various fields for gathering, observing and examination of information from distant areas. IoT incorporated network if wherever beginning from brilliant urban areas, savvy power lattices, and shrewd inventory network to brilliant wearable. However IoT is still under applied in the field of climate it has colossal potential. It very well may be applied to identify woodland fire and early tremor, diminish air populace, screen snow level, forestall avalanche, and torrential slide and so forth. In addition, it very well may be executed in the field of water quality observing and controlling framework. Water quality checking has acquired interest among specialists in this twenty-first hundred years. Various works are either finished or continuous in this subject zeroing in on different parts of it. The vital topic of the relative multitude of undertakings was to foster a proficient, practical, constant water quality checking framework which will incorporate remote sensor organization and web of things. In this examination, we screen the physical and synthetic boundaries of water bodies inside Chittagong city by utilizing an IoT based sensor organization.

LITERATURE SURVEY:

The author describes [1] extremely high fine particulate matter ($PM_{2.5}$) concentration has been a topic of special concern in recent years because of its important and sensitive relation with health risks. However, many previous $PM_{2.5}$ exposure assessments have practical limitations, due to the assumption that population distribution or air pollution levels are spatially stationary and temporally constant and people move within regions of generally the same air quality throughout a day or other time periods. To deal with this challenge, they propose a novel method to achieve the real-time estimation of population exposure to $PM_{2.5}$ in China by integrating mobile-phone locating-request (MPL) big data and station-based $PM_{2.5}$ observations. Nationwide experiments show that the proposed method can yield the estimation of population exposure to $PM_{2.5}$ concentrations and cumulative inhaled $PM_{2.5}$ masses with a 3-h updating frequency. Compared with the census-based method, it introduced the dynamics of population distribution into the exposure estimation, thereby providing an improved way to better assess the population exposure to $PM_{2.5}$ at different temporal scales. Additionally, the proposed method and dataset can be easily extended to estimate other ambient pollutant exposures such as PM_{10}, O_3, SO_2, and NO_2, and may hold potential utilities in supporting the environmental exposure assessment and related policy-driven environmental actions.

The author describes [2] according to Human Rights Watch, twenty million people in our country are still drinking water contaminated with arsenic. The World health Organization (WHO) has also stated this crisis as "the largest mass poisoning of a population in history". To reduce the water related diseases and prevent water population, they have to measure water parameters such as ph, turbidity, conductivity, temperature etc. Traditional methodology of water monitoring requires collecting data from various sources manually. Afterwards samples will be sending to laboratory for testing and analyzing. In order to save time consumption and decrease manual effort my testing equipments will be placed in any water source. As a result this model can detect pollution remotely and take necessary actions. The main goal of this paper to build a Sensor- based Water Quality Monitoring System. Arduino Mega 2560 act as a base station and data from sensor nodes will be send to it. For the academic purpose, this paper presents a small prototype of sensor networks consisting of temperature, water level, flow and ph. Then ph and temperature sensor values were sent cloud platform (ARTIK cloud) and displayed as a graphical representation on a local PC. Moreover GSM shield (SIM808) is connected to Arduino Mega which compares sensor values to threshold values and sends a text alert to the agent if the obtained value is above or below the threshold value. The results of this project are discussed in the result section of the paper. They tested three water samples from three different water sources (such as industrial water, tap water and swimming pool water). Three water samples collected from three different swimming pools.(Except one sample) Ph value found in rest of the samples were in normal range (temperature value between 26-27'C). Result section explains their project findings in details.

The author describes [3] Smart risk assessment systems are becoming more and more important in the society. If the chances of reducing and managing certain risks are increased, the impacts can be controlled and reduced significantly. This article surveys different belief-rule-based decision support systems and various wireless sensor network technologies that can be used in collaboration to build interesting risk assessment applications. They propose a model for building such an environment and describe a potential application of their proposed model for assessing flood risks in a case study.

The author describes [4] Wireless sensor networks (WSNs) are the key enablers of the internet of things (IoT) paradigm. Traditionally, sensor network research has been to be unlike the internet, motivated by power and device constraints. The IETF 6LoWPAN draft standard changes this, defining how IPv6 packets can be efficiently transmitted over IEEE 802.15.4 radio links. Due to this 6LoWPAN technology, low power, low cost microcontrollers can be connected to the internet forming what is known as the Wireless embedded internet. Another IETF recommendation, CoAP allows these devices to communicate interactively over the internet. The integration of such tiny, ubiquitous electronic devices to the internet enables interesting real-time applications. They evaluate the performance of a stack consisting of CoAP and 6LoWPAN over the IEEE 802.15.4 radio link using the Contiki OS and Cooja simulator, along with the CoAP framework Californium (Cf).

REFERENCE:

[1] Chen, B., Song, Y., Jiang, T., Chen, Z., Huang, B., & Xu, B. (2018). Real-time estimation of population exposure to PM2. 5 using mobile-and station-based big data. International journal of environmental research and public health, 15(4), 573.

[2] Paul, B. (2018). Sensor based water quality monitoring system (Doctoral dissertation, BRAC University).

[3] Andersson, K., & Hossain, M. S. (2014, May). Smart risk assessment systems using belief-rule-based DSS and WSN technologies. In *2014* 4th International Conference on Wireless Communications, Vehicular Technology, Information Theory and Aerospace & Electronic Systems (VITAE) (pp. 1-5). IEEE.

[4] Thombre, S., Islam, R. U., Andersson, K., & Hossain, M. S. (2016, April). Performance analysis of an IP based protocol stack for WSNs. In 2016 IEEE conference on computer communications workshops (INFOCOM WKSHPS) (pp. 360-365). IEEE.