ICCCIT 2020

CONFERENCE PROCEEDINGS

International Conference on

COMPUTING, COMMUNICATION AND INFORMATION TECHNOLOGY

ICCCIT 2020

Organised by
Department of
Computer Science & Engineering

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PREFACE

The 21st century has witnessed a paradigm shift in three major disciplines of knowledge i. Computing, ii. Communication and iii. Information Technology. While first two are complete in themselves by their titles, the last one covers several sub-areas involving bio, geo, medical and cognitive informatics among many others. Actually, the above three major areas of knowledge 4.0 are complementary and mutually exclusive but their convergence is observed in many real world applications, encircling cyber security, Database technology, Data Science, Machine learning, deep learning, AI, Internet banking, health care, network security, AR/VR, industry 4.0, Internet of Things (IoT), sensor network, web technology, cognitive learning, data mining, mobile computing, grid computing, cloud technologies, green computing, quantum computing and many others.

The international conference on Computing, Communication and Information Technology (I3CIT 2020) is aimed at investigative the meeting of the above three modern areas through interaction among three groups of people. I3CIT 2020 (International Conference on Computing Communication & Information Technology) is an International Conference in the area of Computing, Communication and Information Technology focusing to address the issues and developments in Science, Engineering and Technology.

The aim of this conference is to put emphasis on the need for emerging technology in computing communication and information technology. It also provides a forum for National /international Research Scholars, software industry people and Professionals, consultants, Faculty, PG and UG Students to discuss and evolve solutions for various difficulties faced during developments. The conference serves as a forum to foster the exchange of experiences among researchers, improve research quality and address current issues.

Upon successful completion of this conference, the participants will be able to gain insight on Advanced Computing, Communication & IT and Techniques in Computer Science & Engineering thereby promoting Sustainable development. The benefits of this conference are more towards the potential use of information technology in computer science and engineering.

All the keynote speakers and invited papers were reviewed by the Review Committee and grouped under two technical sessions. It has been so designed that the conference will launch off with address from the invited **Chief Guest *Padma Shri. Dr. Mylswamy Annadurai,* *Former Director of ISRO and Vice President of TNSCST, Chennai, Tamil Nadu.*** followed by keynote addresses from the invited guests *Special Guest* **Dr. E. K. T. Sivakumar,** Visiting Professor, Centre for Nanoscience and Technology, Anna University, Chennai-600 025. Tamil Nadu, India and **Mrs. G. Geetha**, Informatica LLC, Vice President, Global Customer Support, California, USA and the presentations by the participants from various Institutions. The editorial committee has also formed to publish proceedings of the International Conference.

We take this Opportunity to thank our **Chairman Shri. P. Sriram, Vice Chairman Shri. P. Janakiraman** and **Secretary Mrs. S. Sridevi** for giving us all support and encouragement to make this Conference a grand success. We also express our sincere thanks to our **Principal Dr. P. Partheeban** for extending the support to conduct the conference in successful manner.

We would like to mention the untiring efforts put forth by the **Teaching and Non-teaching staff and the students of the Department of Computer Science and Engineering & Information Technology** and thank them profusely.

Dr. B. Sundarambal
Dr. R. Janarthanan

VILLAGE WATER QUALITY AND AIR POLLUTION MONITORING SYSTEM

Promod V Patil[1], Gangadhar girgave [2]

HSIT NIDASOSHI[1,2]

Abstract— This paper represents an IoT (Internet of things) based village water quality and air pollution monitoring system. This system measures water condition based on two physical parameters (pH, and turbidity properties) & also measures concentrations of gases such as CO, CO2, H and methane using sensors. All sensors are connected with Arduino UNO in discrete way to detect the water parameters and concentration of gases. The output of all sensors values are compared with WHO (world health organization) water & air parameters and then the data is send to server. If sensor values are matched with standard values then water is supply to village otherwise water is not supply to village.

  Index Terms— Internet of things Arduino UNO, turbidity.

I. INTRODUCTION

The pollution has become a major problem around the world, air pollution and water pollution is the most dangerous, shocking and severe pollution among other pollutions e.g. water pollution, soil pollution, noise pollution, light pollution, thermal pollution etc. Water pollution is the major cause of diseases like typhoid fever, Cholera, Diarrhea etc**.** Air pollution is the major cause of diseases like asthma, cancer, bronchitis, birth defects and immune system like diseases. The impact of water on any living beings is beyond description. With the rapid increase of world population, water management becomes an important issue specially in industrial, agricultural and other sectors. Most of the people around the world lack behind drinkable water. Every year many people are suffering from various fatal diseases caused by water pollution. Research has found that around 5 million death is caused only because of drinking unsafe water. Research by WHO (World Health Organization) shows that almost 1.4 million of child death can be prevented by providing drinkable water to them. Considering the daily newspapers and any other electronic or print media, a devastating news which is spreading day by day is people is becoming sick and the climate is changing such a way that it has become miserable for living of people. From the aspect from top to bottom, every people are suffering the curse of climate change.

The main reason for the climate change and people health is air pollution. It has brought changes in climate like global warming, global dimming, over raining, drought, storms, acid rain, foggy weather etc. The living things on earth and under water are suffering many problems like change in life due to lack of proper facilities of life

II LITERATURE REVIEW

	AUTHORS	TITLE OF THE PAPER	TECHOLOGY USED
1	N. Vijay Kumar, R Ramy	Real time monitoring of the water quality parameters	Raspberry pi
2	Brinda D and Jain P.C	Real-Time Water Quality Monitoring System using Internet of Things	Microcontroller(LPC2148) Zigbee module
3	Ms.Sarika Deshmukh, Mr. Saurabh Surendran, Prof. M.P. Sardey	Air and Sound Pollution Monitoring System using IoT	Microcontroller PIC16F877A
4	Dr.A.Sumithra and Dr. S. Gavaskar	smart environment monitoring system using Internet Of Things	ATMEGA 328

1. N. Vijay Kumer, R Ramya developed a system for real time monitoring of the water quality parameters. In their research they measure the water parameter such as turbidity, conductivity, temperature, pH and dissolved oxygen. Instead of Arduino they used the raspberry pi b+ model as core controller and send the sensor data on cloud platform.

2. Brinda D and Jain P.C. in their paper designed a wireless sensor network using zigbee module. This module transfers the sensor data wirelessly to the microcontroller. Then a GSM module sends that data to the smart phone. Additionally they used.

3. Air and Sound Pollution Monitoring System using IoT. - Ms.Sarika Deshmukh, Mr. Saurabh Surendran, Prof. M.P. Sardey. Is a real-time monitoring system for the monitoring of concentration of air pollution and sound pollution in the environment. For this purpose, a hardware system is designed to detect the carbon monoxide, carbon dioxide and smoke concentration. The output of the system obtained from the sensor and processor collaboration is in digital form. A network using Wi-Fi technology can transmit the information of sensor modules to the another location. The proposed system is supposed to measure the pollution levels of various places orsites.

4. A smart environment monitoring system using Internet Of Things. Dr.A.Sumithra,J.Jane Ida, K. Karthika , Dr. S. Gavaskar.(March 2016). This is a community-led air quality sensing network that allows anyone to collect very high resolution readings of NO2 and CO concentrations outside of their home.1T 1TSensor networks are also being deployed in tunnels to monitor air flow, visibility, and a range of gases (CO, CO2, NO2, O2, SH2 and PM-10).1T 1TOther sensor networks measure temperature, humidity and similar parameters on highways to qualify them as 'smart roads'.Due to the vast technological developments in the field of wireless communication technology it has led to the emergence of many Pollution monitoring sensors and wireless networks for monitoring and reporting pollution.

III *PROPOSEDWORK*

The model is designed using an Arduino Uno microcontroller, GSM module, pH sensor, Turbidity sensor, MQ 2, MQ 7 Gas Sensor, pump, transformer, rectifier, regulator and a 16x2 liquid crystal display (LCD) Screen. The functional block diagram is shown in figure1This project represents an IoT (Internet of things) based village water quality and air pollution monitoring system. This system measures water condition based on two physical parameters (pH, and turbidity properties) & also measures concentrations of gasessuchasCO, CO2,Hand methane using sensors. All sensor are connected with Arduino UNO in discrete way to detect the water parameters and concentration of gases. The output of all sensors values are compared with WHO (world health organization) water & air parameters and then the data is send to server. If sensor values are matched with standard values then water is supply to village otherwise water is not supply to village
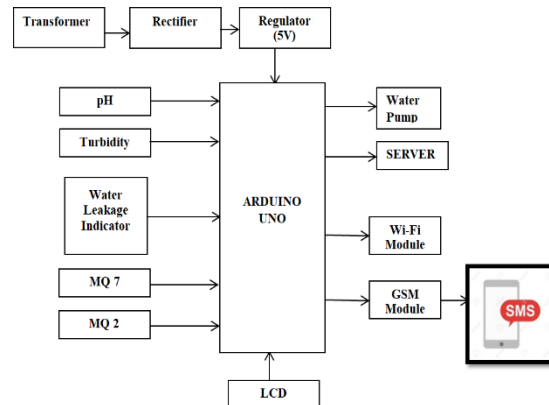
BlockDiagram

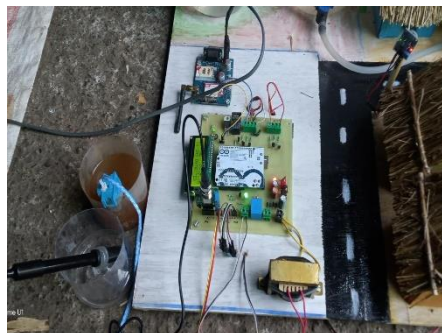**Fig : BLOCK DIAGRAM OF PROPOSED SYSTEM**

III HARDWARE DESIGN

Fig: Hardware Design of Proposed System.

POWERSUPPLY:-

The electric power is almost exclusively generated, transmitted and distributed in the form of alternating current as an economical proposition. However for many applications we require dc supply. Batteries cannot be used for the purpose as they are costly and require frequent replacement. Therefore, it is necessary to convert available ac supply into the required dc supply. This is achieved by an electronic device known as rectifier.

RECTIFIER:-

An electronic device which converts Alternating current into Direct current is called as rectifier. A rectifier changes ac into dc by eliminating the negative half-cycles of the alternating voltage. It may be thought of as a switch that closes a load circuit during the positive half-cycle of ac. supply and opens the circuit during the negative half-cycle. Therefore rectifier provides one-way path for electric current i.e. conduction takes place in one direction only. It is in this way that a rectifier converts an alternating current into unidirectional current. For reasons associated with economics of generation and

transmission, the electric power available is usually an ac. supply. The supply voltage varies sinusoidal and has a frequency of 50 Hz. It is used for lighting, heating and electric motors. But there are many applications (e.g. electronic circuits) where dc supply is needed. When such a dc supply is required, the mains ac. supply is rectified by using crystal diodes.

FILTERCIRCUIT:-

The output of the rectifier has pulsating character i.e. it contains ac and dc components. The ac component is undesirable and must keep away from the load. To do so a filter circuit is used. The most commonly used are capacitor filter; choke input filter and π filter.

CAPACITOR FILTER:-

It is extremely popular because of its low cost, small size, little weight and good characteristics. It consists of a capacitor connected across rectifier output in parallel with load. The pulsating dc voltage of the rectifier output is applied across the capacitor. As the rectifier voltage increases it charge the capacitor and also supplies current to the load. Once the capacitor charged to the peak value of output voltage, it starts discharging through load. The voltage across the load will

decrease slightly because immediately the next voltage peak comes and recharges the capacitor.

This process is repeated again and again and the voltage waveform becomes average value. It may be seen that very little ripple is still present in the output which may be eliminated by using voltage regulator. The above reasons necessitate using regulated dc power supply

IV RESULTS

Fig (a). Output results on ThinkSpeak sever
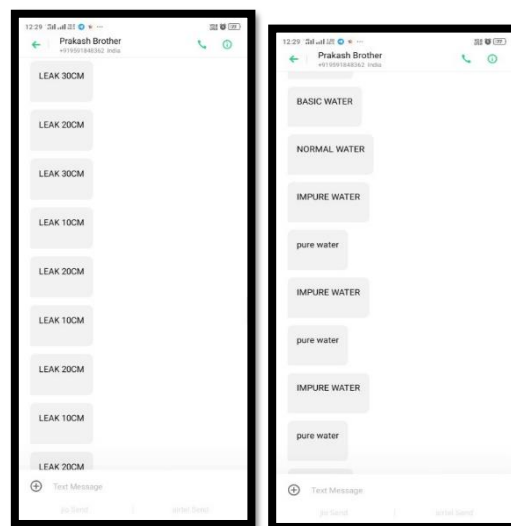

Fig (b). SMS received from system

Fig (c). output results on display

V CONCLUSION

The design and development of the village water quality and air pollution monitoring system. The proposed system consists of several water quality and air pollution parameter sensors. The system can be easily installed, with the base station kept close to the target area, and the task of monitoring can be done by less-tried individuals. The system can monitor water & air quality automatically, and it is low in cost and does not require people on duty.

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