International Journal of Advance Research in Science and Engineering
Vol. No.9, Issue No. 03, March 2020
www.ijarse.com
IJARSE
ISSN 2319 - 8354

POLLUTION MONITORING AND CONTROLLING SYSTEM WITH IoT

Jey surya.B[1] Krishnan.P.R[2] Saravanan.T[3] Thiyagaraj.S[4] Gopinath.P[5]

[1]Department of ECE, Sengunthar Engineering College (Autonomous), Tiruchengode, (INDIA)
[2]Department of ECE, Sengunthar Engineering College (Autonomous), Tiruchengode, (INDIA)
[3]Department of ECE, Sengunthar Engineering College (Autonomous), Tiruchengode, (INDIA)
[4]Department of ECE, Sengunthar Engineering College (Autonomous), Tiruchengode, (INDIA)
[5]Assistant Professor, Department of ECE, Sengunthar Engineering College (Autonomous),Tiruchengode, (INDIA)

ABSTRACT:

The level of pollution has increased with times by lot of factors like the increase in population, increased vehicle use, industrialization and urbanization which results in harmful effects on human well-being by directly affecting health of population exposed to it. In order to monitor quality of air, water quality and sound level of the environment over IOT based new framework is proposed which is based on data acquisition, transmission and controlling.

Keywords:*air, embedded systems,IoT, sound,water.*

1. INTRODUCTION:

The terms monitoring and assessment are frequently confused and used synonymously. The process of industrial quality assessment is an evaluation of the industrial quality in relation to standard quality set by pollution control board. Due to the complexity of factors determining industrial quality, large variations are found between different industries. Similarly, the response to industrial impacts is also highly variable. To design an Industrial machine control and monitoring system using IOT. Surveillance is most important security systems in home, industrial, office and public places. To build a robust system that can measure the industrial pollution and help to reduce it and to decrease human interference in monitoring the industrial pollution to reduce pollution and provide a healthy environment for the workers to work in. To build a robust system that evaluates the industrial pollution continuously and indicates when there is an increase in emission and controls it using IOT.

2. LITERATURE SURVEY:

2.1 S. Muthukumar ; W. Sherine Mary ; S Jayanthi ; R Kiruthiga ; M Mahalakshmi,Pollution related deaths increase every year and the leading factor for these deaths is air pollution. Air pollution is caused due to

various elements among which pollution due to automobiles plays a pivotal role. Our work considers pollution due to automobiles and provides a real time solution which not just monitors pollution levels but also take into consideration control measures for reducing traffic in highly polluted areas. The solution is provided by a sensor based hardware module which can be placed along roads. These modules can be placed on lamp posts and they transfer information about air quality wirelessly to remote server. This information can be used for traffic control. The proposed system also provides information about air quality through a mobile application which enables commuters to take up routes where air quality is good.

2.2 Xu Luo ; Jun Yang,Sensor networks have been widely used in environment monitoring. Although there are some related works about water pollution monitoring and water pollution source localization using sensor networks, there are many problems which have not been solved so far. In this paper, the current research status on water pollution monitoring and water pollution source localization in sensor networks is illustrated firstly. And then, the fundamental problems in the researches are analyzed, and the challenges are proposed.

2.3 Tingkai Liu ; Zikai Liu ; Richard W. Jones, In the last 40 years rapid industrialization, urbanization and the subsequent rising living standards in China have contributed to the current high pollution levels. The government had been reluctant to address the pollution issue due to concerns about how increasing industry emission controls might affect China's global competitiveness but with an increasing number of complaints from the expanding middle class coupled with studies that have attributed 1-2 million deaths per year to air pollution the government has now begun to address some of the issues. Tighter control on industry emissions have been implemented while daily government air pollution measurements are now publicly available. In 2018 the government also announced that they will also start to investigate the health risk effects of Pollution. This contribution examines the evolution of air pollution monitoring and modelling relating to Zhejiang Province, a highly urbanized province within the Yangtze River Delta - the largest metropolitan region in China. There is an enormous amount of air pollution research dedicated to the region - particularly the source, monitoring and health effects of air pollution within Hangzhou, the administrative capitol of Zhejiang.

2.4 Swati Dhingra ; Rajasekhara Babu Madda ; Amir H. Gandomi ; Rizwan Patan,Internet of Things (IoT) is a worldwide system of “smart devices” that can sense and connect with their surroundings and interact with users and other systems. Global air pollution is one of the major concerns of our era. Existing monitoring systems have inferior precision, low sensitivity, and require laboratory analysis. Therefore, improved monitoring systems are needed. To overcome the problems of existing systems, we propose a three-phase air pollution monitoring system. An IoT kit was prepared using gas sensors, Arduino integrated development environment (IDE), and a Wi-Fi module. This kit can be physically placed in various cities to monitoring air pollution. The gas sensors gather data from air and forward the data to the Arduino IDE. The Arduino IDE transmits the data to the cloud via the Wi-Fi module. We also developed an Android application termed IoT-Mobair, so that users can access relevant air quality data from the cloud. If a user is traveling to a destination, the pollution level of the entire route is predicted, and a warning is displayed if the pollution level is too high.

International Journal of Advance Research in Science and Engineering
Vol. No.9, Issue No. 03, March 2020
www.ijarse.com
IJARSE
ISSN 2319 - 8354

The proposed system is analogous toGoogle traffic or the navigation application of Google Maps. Furthermore, air quality data can be used to predict future air quality index (AQI) levels.

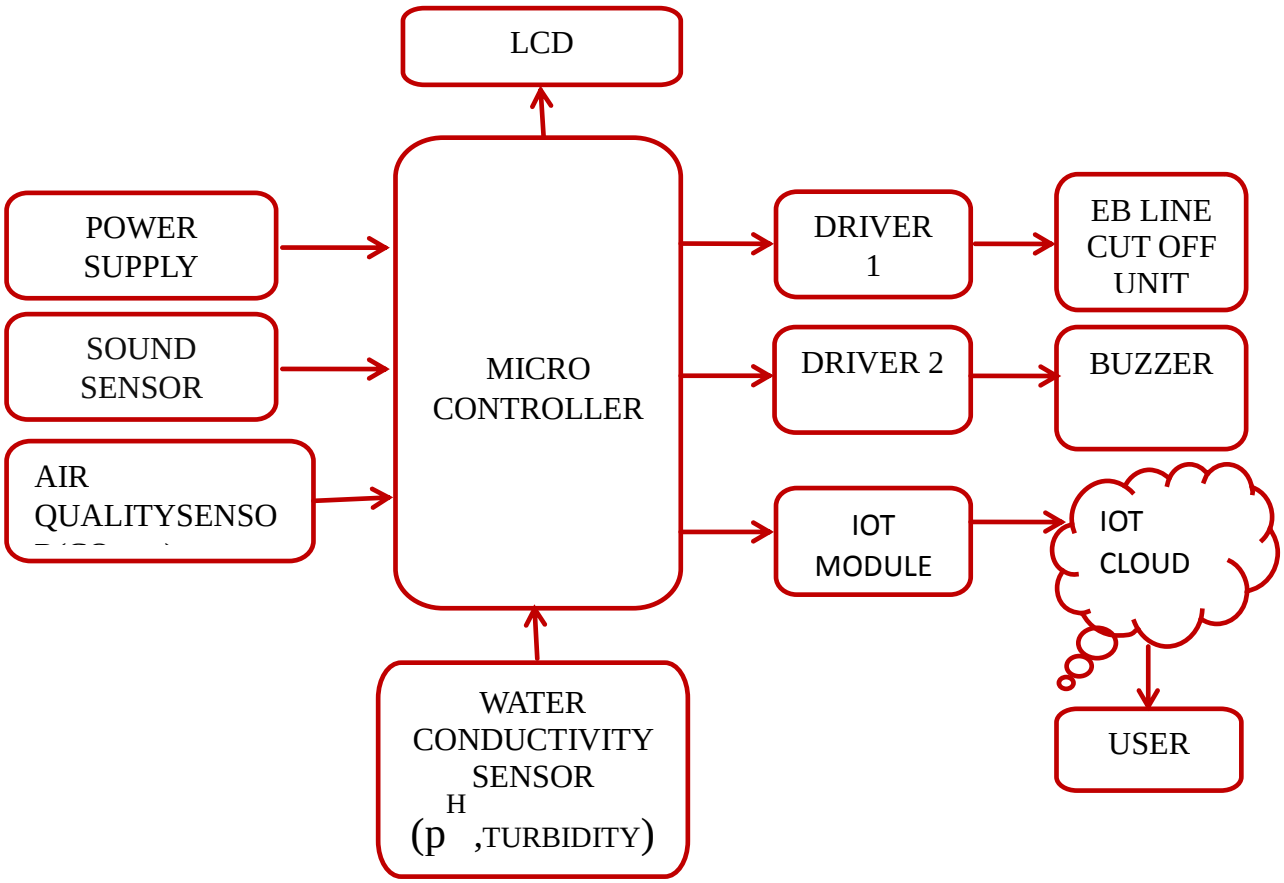
3. EXISTING SYSTEM:

- Air quality, water and sound pollution are monitored separately.
- Only monitoring is acknowledged in existing system.

4.PROPOSED SYSTEM

- In proposed system, Air quality, water and sound pollution will be monitored and controlled on single system together.
- At the same time, tripper unit added to deactivate the pollution source.

5.BLOCK DIAGRAM:



5.1. WORKING PRINCIPLE:

In this proposed system, Air quality, water and sound pollution will be monitored and controlled on single system together. At the same time, tripper unit added to deactivate the pollution source. The parameters of the environment to be monitored are chosen as temperature, volume of CO2, conductivity of water, Turbidity of the water and sound level of environment. The values of these parameters are transmitted by using IoT and controlled by the inspection department.

6. CONCLUSION AND FUTURE ENHANCEMENT:

The IOT concept can be applied to a wide range of application. We implemented the use of IOT in Industrial pollution monitoring and this project, real time air pollution monitoring system based on IOT is presented. GSM is connected through level converter and an IOT module is connected to get the real time data so that the users can login and get data. Real time monitoring of air quality parameters ensures that the industrial emissions levels are maintained throughout and helps us to track all the data in a single place (i.e) cloud and reduce the pollution based on the collected data.The implementation cost is very economical as the sensors and the microcontrollers are easily available. The online database system has increased the flexibility by updating all current parameters of the industries over a common server. The camera can be upgraded in future with image processing algorithms to enable a fully automated system for safety, such as fire alarm, gas leakage. This enables to generate automated control action in the absence of the authorized user.

7. REFERENCES:

[1] Okokpujie. K., Noma-Osaghae. E., Modupe. O., John. S., and Oluwatosin. O. (2018), 'A Smart Air Pollution Monitoring System' , IJCIET. Vol. 9 , pp. 799-809.

[2] Saha. H.N., Auddy. S., Chatterjee. A., Pal. S., Pandey. S., Singh. R., Singh. R., Sharan. P., Banarjee. S., Ghosh. D., and Maity. A. (2017), 'Pollution Control using Internet of Things (IoT)' , Vol. 10 ,pp. 65-68.

[3] Chaudhari. A.N., and Kulkarni. G.A. (2017), 'IoT based Environmenal Pollution Monitoring System' , IRJET. Vol. 04 , pp. 1823-1829.

[4] Khedo. K.K., Perseedoss. R., and Mungur. A. (2010), 'A Wireless Sensor Network Air Pollution Monitoring System' , IJWMN. Vol. 2 , No. 2., pp. 31-45.

[5] Chu. D.A., Kaufman. Y.J., Zibordi. G., Chern. J.D., Mao. J., Li. C., and Holben. B.N. (2003), 'Global monitoring of air pollution over land from the Earth Observing System-Terra Moderate Resolution Imaging Spectroradiometer(MODIS)'. pp. 1-8.

[6] Deshpande. A., Pitale. P., and Sanap. S. (2016), 'Industrial Automation Using Internet Of Things(IOT)', IJARCET. Vol. 5, No. 2., pp. 266-269.

[7] Prof. Niranjan. M., Madhukar. N., Ashwini. A., Muddsar. J., and Saish. M. , 'IOT Based Industrial Automation', IOSR-JCE. pp. 36-40.

[8] Lavanya. M., Muthukannan. P., Bhargav. Y.S.S., and Suresh. V, 'IoT Based Automated Temperature and Humidity Monitoring and Control', JCPHS. pp. 86-88.

[9] Bauskar. P.A. and Prof. Pujari. K, (2016), 'A Review on Industrial Automation Using IOT', IRJET. Vol. 03, No. 12., pp. 1209-1212.

[10] Swami. S., Nalawade. P., Jadhav. S. and Prof. Yadav. N.C, (2018), 'IOT Based Industrial Automation', IRJET. Vol. 05, No. 03., pp. 1895-1899.