

IOT Based Air & Sound Pollution Monitoring System

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ABSTRACT

The pollution of air and sound is increasing abruptly. To bring it under control its monitoring is majorly recommended. To overcome this issue, we are introducing a system through which the level of sound and the existence of the harmful gases in the surroundings can be detected. The growing pollution at such an alarming rate has started creating trouble for the living beings, may it be high decibels or toxic gases present in the environment leaves a harmful effect on human's health and thus needs a special attention.

This monitored data can be obtained from remote location without actually visiting it due to the access of internet. The framework of this monitoring system is based on combination or collaboration of affective distributed sensing units and information system for data composition. The role of IoT is the new concept used in air and sound pollution measurement, which allows data access from remote locations.

1.Introduction

Air and sound pollution is a growing issue these days. It is necessary to monitor air quality and keep it under control for a better future and healthy living for all. Here we propose an air quality as well as sound pollution monitoring system that allows us to monitor and check live air quality as well as sound pollution in particular areas through IOT. System uses air sensors to sense presence of harmful gases/compounds in the air and constantly transmit this data to microcontroller. Also system keeps measuring sound level and reports it to the online server over IOT. The sensors interact with microcontroller which processes this data and transmits it over internet. This allows authorities to monitor air pollution in different areas and take action against it. Also authorities can keep a watch on the noise pollution near schools, hospitals and no honking areas, and if system detects air quality and noise issues it alerts authorities so they can take measures to control the issue. Some future consumer applications envisioned for IoT sound like science fiction, but some of the more practical and realistic sounding possibilities for the technology include: Receiving warnings on your phone or wearable device when IoT networks detect some physical danger is detected nearby. Self-parking automobiles. Automatic ordering of groceries and other home. Automatic tracking of exercise habits and other day-to-day personal activity including goal tracking and regular progress reports. Network Devices and the Internet of Things All kinds of ordinary household gadgets can be modified to working an IoT system. Wi-Fi network adapters, motion sensors, cameras, microphones and other instrumentation can be embedded in these devices to enable them for work in the Internet of Things. Home automation systems already implement primitive versions of this concept for things like light bulbs, plus other devices like wireless scales and wireless blood pressure monitors that each represent early examples of IoT gadgets.

2.LITRATURE SURVEY

[1]. IOT based Air and Sound Pollution Monitoring System. - Arushi Singh, Divya Pathak, Prachi Pandit, Shruti Patil, Prof. Priti. C. Golar. (March 2017).It uses Sound level, Gases, IOT, Sensor. System uses air sensors to sense presence of harmful gases/compounds in the air and constantly transmit this data. Also, system keeps measuring sound level and reports it. It shows the digital value of air and sound pollution and user can analyze it with a graph. It supports the new technology and effectively supports the healthy life concept.

[2]. Air and Sound Pollution Monitoring System using IoT. - Ms.Sarika Deshmukh, Mr. Saurabh Surendran, Prof. M.P. Sardey.(June 2017).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 or sites.

[3]. Implementation of an Efficient Noise and Air Pollution Monitoring System Using Internet of Things (IoT). - Anjaiah Guthi (July 2016).System includes Internet of Things (IoT); Embedded Computing System; Arduino UNO; MATLAB Software; Smart Environment.Here the sensing devices are connected to the embedded computing system to monitor the fluctuation of parameters like noise and air pollution levels from their normal levels. This model is adaptable and distributive for any infrastructural environment that needs continuous monitoring, controlling and behavior analysis. The working performance of the proposed model is evaluated using prototype implementation, consisting of Arduino UNO board, sensor devices and MATLAB with Arduino hardware support package. The implementation is tested for two or three parameters like noise, CO and radiation levels with respect to the normal behavior levels or given specifications which provide a control over the pollution monitoring to make the environment smart.

[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.IT 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).IT 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.

[5]. An IoT Based Automated Noise and Air Pollution Monitoring System.- Palaghat Yaswanth Sai.(March 2017). Proposed an air quality as well as sound pollution monitoring system that allows us to monitor and check live air quality as well as sound pollution in a particular areas through IOT. System uses air sensors to sense presence of harmful gases/compounds in the air and constantly transmit this data to microcontroller. Also system keeps measuring sound level and reports it to the online server over IOT. The sensors interact with microcontroller which processes this data and transmits it over internet. This allows authorities to monitor air pollution in different areas and take action against it.

3.PROPOSED SYSTEM

As modernization is growing rapidly internet technologies and wireless sensor networks are advanced, a new trend in the era of omnipresence is being realized. The increase in the number of internet users and application on the internetworking technologies enable networking of everyday objects requiring human-to-human or human-to-computer communication. Internet of Things allows an exchange of information to and from a device or thing. It can be anything such as refrigerators, watches, fans, air conditioner, automobiles, or anything. It is a communication between human and machine or machine and machine. Due to flexibility and low cost Internet of things (IoT) is getting popular day by day. With the urbanization and with the increase in the vehicles on road the atmospheric conditions have considerably affected. Also, there has been the growth of industries and infrastructure which has caused increase in pollution in atmosphere like air and sound pollution. Air pollution and sound pollution are major

constituents for having adverse and harmful effects on environment as well on human beings. To monitor this pollution is a very difficult task. Traditionally, authorities like data loggers were used to collect the data of the site to be analyzed. They had to visit the site to be analyzed every time they wanted the data. This was a lengthy, time consuming and expensive task. Due the use of sensors collaborated with internet can make pollution monitoring less complex, less time consuming and flexible. The data can be obtained from remote location without having to visit the location due the internet. Also, an accurate data with indexing capabilities will be able to obtain. Monitoring gives measurements of air pollutant and sound pollution concentrations, which can then be analyzed interpreted and presented. This information can then be applicable in many ways. Analysis of monitoring data allows us to assess how bad air pollution and sound pollution is from day to day.

4.BLOCK DIAGRAM

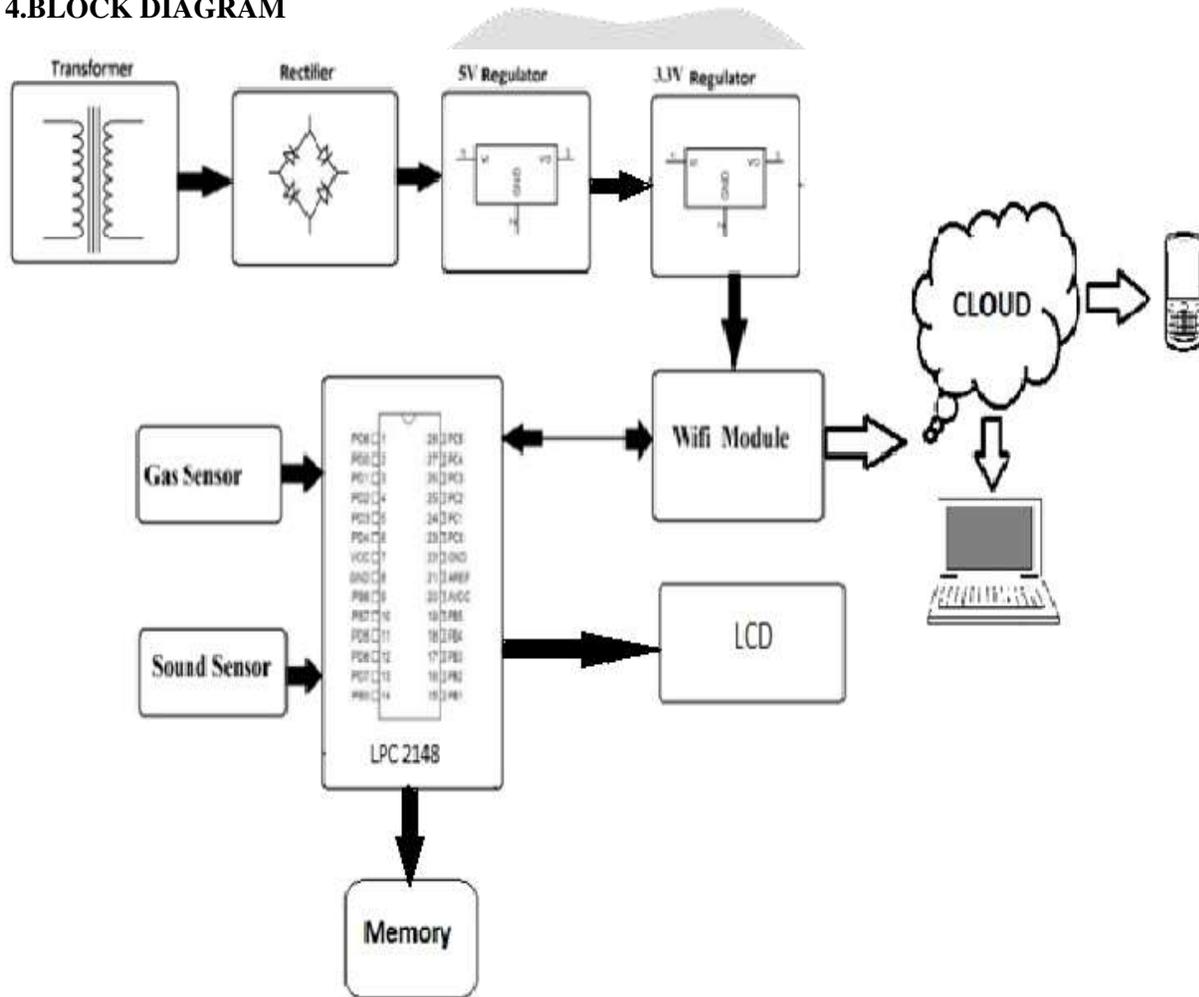


Fig: Block diagram of system

4. CONCLUSIONS

The IOT based Air & Sound pollution monitoring system is a step forward to contribute a solution to the biggest threat. The air & sound monitoring system overcomes the problem of the highly-polluted areas which is a major issue. It supports the new technology and effectively supports the healthy life concept. This system has features for the people to monitor the amount of pollution on their mobile phones using the application. So, it becomes very reliable and efficient for the Municipal officials along with the Civilians to monitor environment. Letting civilians also involved in this process adds an extra value to it. As civilians are now equally aware and

curious about their environment, this concept of IOT is beneficial for the welfare of the society. And it is implemented using the latest technology.

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