



SMART AIR POLLUTION DETECTION AND MONITORING USING IOT

D.Arunkumar¹, K.Ajaykanth², M.Ajithkannan³, M.Sivasubramanian^{*4}

^{1, 2, 3} UG Student, ⁴ Assistant Professor,

Vel Tech Multi Tech Dr.RR Dr.SR Engineering College

Avadi, Chennai, India

Email ID: ¹ arunkmr1410@gmail.com, ² kanthbaby2@gmail.com, ³ akajithkannan@gmail.com

^{*4} sivasubramanian@veltechmultitech.org,

Abstract

Every vehicle has its own emission of gases, but the problem is occurs when the emission of the gas beyond the standardized values. The foremost reason for this breach of emission level being the incomplete combustion of the fuel which is been supplied to the engine they occurs due to the improper servicing of vehicles on time. This emission from the vehicles which cannot be completely avoided, but in certain things we can able to control this. At this situation, in most of the countries air pollution is the major problem. In our life there are three essential requirements are used on earth i.e. air, water and food. At end the formers are grown by our foods; before eating it is washed and cooked. Before it consumed the water, the water passes through a scrupulous cleaning

process. From the statics , without knowing anything weather the air polluted or not the living beings, taking breathe over 3000 gallons of air in each day. Therefore this proposes have to increase awareness to people regarding air quality monitoring and pollutants. Due to the air pollution not only affect the human health and also damage the environment and eco system so reduce the aging of living things.

In Asian countries including India, the air pollutions is a major and severe environmental problems so in this countries very poor air quality observed by majority population. The lot of health issues like respiratory diseases, developing cancer, serious sickness and trouble. The work proposes a cloud based air quality detection

System that analyzes the data for providing atmospheric quality to the user in real time.

The proposed idea of this paper is by using the pollution control circuit, to monitor the air pollutants emitted by lot of transports like all vehicles and industries and domestics' wastage in the form of solid and gases. The different gases like CO₂ and CO and several toxic gases and temperature, smoke and humidity are sensed by sensors. The sensor output circuits are connected to a controller. These normal and abnormal values transmitted to Modem through the IOT.

Key Words: IOT.

INTRODUCTION

Where Sensors networks which are been used as an active research area because it has so many advantages mainly due to the potential of their applications .In this paper we are going to investigate the use of Wireless Sensor Networks(WSN) for air pollution monitoring in locality. With the growing industrial, the problem are raised due to the pollution, air pollution is becoming major concern for the health .We proposed a system that which are innovative system named Wireless Sensor Network Air Pollution Monitoring System(WAPMS)to monitor in locality through the use of wireless sensors deployed in huge numbers in locality. This system makes use of the Air Quality Index (AQI) which is presently

not available in the market. Where we can able to improve the efficiency of WAPMS, where we have designed and implemented in such a way that Recursive Converging Quartiles (RCQ, is a new data aggregation algorithm. These are the algorithm which are often used to merge data to locate copy data, Filter out invalid readings and summaries them into a simpler form where there is reduction of the amount of data to be transmitted to the particular sink and thus saving energy. For better power management system where we often use a hierarchical routing protocol in WAPMS and caused the motes to sleep during ideal time. This makes for the people belonging to the particular locality can find the amount of pollution which is present so that they can take precautions according to the locality. In this many sensors are activated which are clubbed together and by advanced clouding the amount of percentage can be detected from any here from the location.

Existing System

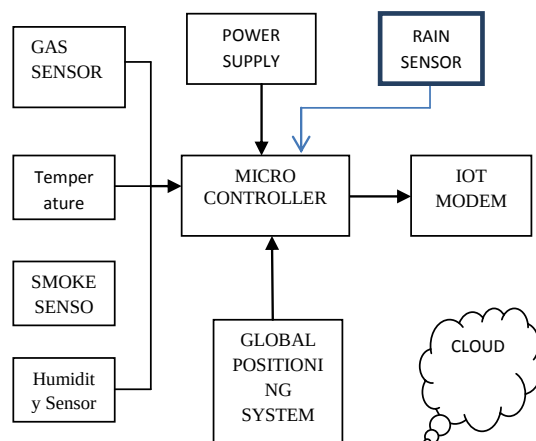
There is no current system to monitor the air pollution. The pollution will affect the people in that area. It also affects ozone because the amount of pollutant is not monitored properly and can't know the amount Location update unavailable. This application is not there in GSM mobile. According to the existing system it is not that much eases and comfort for the peoples to view the amount of pollution which is prevailing in the locality. The particular location cannot be found because it does not consist, this cannot be used that much in the society. There is no specific level of Indications about of the

amount of pollution that has been occurred. This is not handy and not applicable for all the peoples of the society. Less possibility for an early detection of any problem.

Proposed System

This system monitors the current pollution status. This will update in the web server. So, we can monitor anywhere through internet. Web server is also to monitor the current pollution status. Location update available using GPS.

BLOCK DIAGRAM



Working:

The sensors are used to sense the current status in the air. The sensors are connected to the

controller. The controller receives the value and converts into digital form and those values are updated in the web server through GSM modem. The default values are already stored in the web server. The current data will be compared with the default values to analyze the result. The pollution status will be uploaded in the web server. So, the user can view anywhere through internet. When there is an pollution that occurs this shows the total amount of gases which is present on the particular locality example CFC (chlorofluorocarbon) carbon-monoxide and many toxic gases can identified by the amount of percentage which is present on it. The main working principle behind this is IOT which collects information from the cloud which consists of information about the pollution status which is present in our environment. The microcontroller which is used in this device is that Adreuno microcontroller which consists of 6 outputs and 6 inputs so that many sensors can be clubbed together which totally sums up together as an pollution detector and monitoring using an IOT device.

PROCESSING OF SENSORS

The main process of the sensors is that many sensors are being clubbed together as an single device in which many sensors has been used such as humidity sensor temperature sensor gas sensor smoke sensor are all

together clubbed as a single device by using the IOT in the cloud which receives the amount of pollution which is being existed in locality. Each and every sensor works accordingly so that the percentage of the pollution can be determined which is being shown in the display.

ADREUNO MICROCONTROLLER

Adreuno microcontroller is the one in which the many sensors are clubbed together as a single device so that the values which are obtained can be viewed through the percentage. This microcontroller has an 6 output and 6 input which consists of many sensors which are being attached to it. This microcontroller is used for many applications. The cost is normal and it can be used mainly clubbing devices which shows output for many connections which are being connected to it.

FUNCTIONS OF SENSORS

The main function of the sensor is that there are many sensors which are present and each and every sensor has its different kinds of features which are associated with it. A sensor device that detects and responds to some type of input from the physical environment. The output is generally a signal that is converted

to a human readable display at the sensor location or transmitted electronically over a network for reading or further processing.

IOT FUNCTIONS WITH THE CLOUD

Cloud to IOT provides a fully managed service for managing devices. This includes Registration, Authentication, and authorization inside the cloud platform resource hierarchy as well as device metadata stored in cloud and the ability to send device configuration from the service to the device.

ADVANTAGES OF PROPOSED PROJECT

PORTABILITY

It is a compact device which consists of many sensors including cloud which are all combined by using internet of things (IOT)

SAFETY

One can avoid from going to a particular location by redirecting themselves or by taking safety precautions such as wearing a mask and can reduce over dumped wastages in a particular locality area

COST

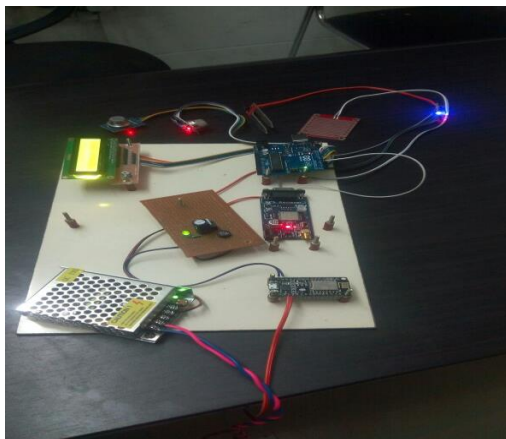
Compared to others it's efficient and low cost because many sensors are clubbed by using IoT and Adreuno microcontroller

SIMPLE MAINTENANCE

As the Project deals with the software embedded C, so maintenance will be easy and this can also be installed in GSM android mobiles.

I. RESULTS

Sample of working board



CONCLUSION

This project proposal which deals about the welfare of the society which would be beneficiary for all the peoples by avoiding

themselves from pollution. The Adreuno microcontroller which consists of the 6input and 6outputs will show greater results with ease. Sensors are of many types which are associated with this is such as gas sensor, humidity sensor, rain sensor, temperature sensor. Considering the major pollution effects which is prevailing in our society this could cause for another dimensions for people in this society of preventing themselves. Hence we conclude our project proposal is all about for the beneficiary to the peoples in our society to prevent themselves from the hazardous gas.

FUTURE SCOPE

The future scope is that device which we are having can be done in an compact way by reducing the size of the device For further implementation or the modifications which can be is that detecting the vehicles amount of pollution which can be determined. Infuture the range can be made increased according to the bandwidth for the high range frequencies. Further research can be made by making the people in the right direction for their welfare. Therefore there is another beneficiary by using this device in an app so the all can be used in an GSM mobile phones for their daily updates by increasing their range.

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