Analysis of Water Contamination and Reporting Using Wireless Sensors Network

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Abstract: In the recent overview says that the climate is influenced by the air and water pollution. The pollutions of C02, NO, CO, S02 these different gases and PH estimation of water decide the tainting. The main reason of the air pollution is the use of automobiles and forms the industries and for water pollution is the wastewater from leather and tanning industries. As the populace is getting expands the toxin is additionally increments at the same time. So to control the population we need to take preventive measures. In this paper we propose the automatic checking and control of air and water population. The sensors are associated with the microcontroller and supply power. At the point when the sensor detects the pollution substances noticeable all around then the detected information is sent to the regulator. On the off chance that the poison is over the edge esteem it will automatically shut the power of industries. The relay is utilized to shut down the by this the pollution of air is controlled and anticipation is made to evade these circumstances in future

Keyword: Water Contamination, Reporting, Wireless Sensors Network, PH Sensitivity, MQ sensors

1. Introduction
Today the lifestyle of the people is totally getting differ when compared to the olden days. In olden day the people safeguard the earth from the pollution and various environmental factors. After some decades the population is get increased and the work pressure is also increasing the peoples are not care about the environment. The people use the bicycles and cart in the before days but in this period, they use the automobiles in every part of the country. So, the pollution is get increases readily. To control the pollution some preventive measures should be taken. The deaths are happening day by day, the death for the pollution is in fifth stage. The people suffer from heart disease, blood pressure, tobacco and after these series the air pollution comes under this category. The air pollution can create several health issues it will cause cancer disease it will leads to death. The article discussed about automatic control and avoidance of air pollution monitoring systems. The air pollution in all the parts of the area is gets monitored. Model setup is made to monitors the pollution in the air. The model is designed by the hardware components such as the ATMEGA 328P, MQ 2 gas sensor, Relay. The several gas measuring sensors are available such as MQ 3, MQ 6, MQ 7 etc. It can monitor the contamination of various gases in the atmosphere. If the pollution is increased the threshold value it will repeatedly shut down the current supply. By implementing the method in the real time it will show maximum efficiency of about 96%. This approach is further extended by updating the pollution data in the cloud with the help of WiFi module.

The TX and RX pins can transmit the data from the controller to the WIFI module after the data is received is it will be upload in the server. So the air quality departments can monitors which area is
polluted maximum. The location update is made by the GPS. The data will transmit along with the GPS location. This above method plays a vital role in controlling the air pollution. The efficiency is about more than 93%. This method is applied in the real time it produces more accuracy. So the health of the human can be protecting from the air pollution. By updating the time to time data of the air pollution in the server the people can view it in the air monitoring application through the mobile. So they can avoid by going to the more polluted affected area. The global warming is controlled and we can able to save many other living things from death.

2. Literature Survey
Xiaofeng Liu et., al., discussed that environment is mostly affected by the air pollution. Nearly 85% of the pollutant air is produced by the vehicle which affects the atmosphere. In foreign countries like Europe and Asia the bicycle program are followed by the most of the peoples. So by this method we can avoid the health issues. The road way air pollutant can affect the major health of the people, they introduce the bicycle born data collection equipment. This equipment can monitor the air quality of the atmosphere. Mainly in the road ways this system is used, it is the low cost sensor, gas sensor MQ-2 which can monitors the gases in the atmosphere and if the sensor detects the emission of gases which is toxic to the environment it sense and transmit the sensed data through the Bluetooth module to the mobile phone. The GPS is implemented to the system which can correctly detect the location. From the test the device performs well and provides better result and it can be integrate into sensor network for air pollution. [1]

Chen Xiaojun et., al., elaborated when the population increases and the pollution is also increasing parallel. The pollution is created by the human who affects the environment. The large, high cost and single data collection can increases the size of installation. The internet of things can be used in all the fields in this paper they proposes the IOT based pollution monitoring and forecasting system. The IOT can send the message as soon as to the cloud, by the use of the advance technology the size is get reduces and the cost of the hardware is getting reduced. This method can be installed in large number of areas to form the sensor network. The convolution of automatic air monitor method can forecast the pollution of air in the time period. The data are obtained from the front end system based on the neural network technology. The minimum loss can be made when we use the above proposed method. [2]

Gagan Parmar et., al., discussed the atmosphere is surrounded by the air which of both polluted and non polluted. The polluted air which affect the human and also the trees and plants. In this paper they propose the automatic air monitoring method. They can concentrate the major air pollutants gases in the environment. The system has the low cost monitoring of gases and it comprises of low cost sensor with the ESP8266 WIFI module. It can measure the convergence of gases, for example, CO, CO2, SO2 and NO2 in the environment. The different kinds of gases are observed by the different MQ sensors. All the assembled information from the sensor can be sent to the raspberry pi which is go about as the base station. The inbuilt WIFI in the raspberry pi can sends the information to the web server. The stack is developed to display the data in the server.

The proposed method is implemented for the low cost data collection. So by the use of the server we can able to get the updated data at each period of time. [3]

S. Muthukumar et., al., worked the use of the number of vehicles is increased day by day which is the main factor for the air pollution. The air pollutant which causes several deaths and health related problems. The main work of this paper is to concentrates on the pollution raised by the automobiles and offers the real time solution. This method is concentrated on both the pollution control and measurement for reducing the traffic in the polluted locations. The model is designed which is get placed in the sides of the road or it the lamp post. The model can transmit the air quality data in the specified place wirelessly to the remote server. This can helps in control the traffic in the highly polluted area. The method furthered enlarged to sends the information of the air quality to the mobile application which helps in takes up the better routes where the quality of air is good. The experimental test is made using the proposed method in the real time it produces 97% efficiency. So it will be implemented in the future to make the environment pollution free [4].
Zhi-gang et., al., worked on the development of the industrialization and urbanization the air is get polluted a lot. The polluted air can create the health related issues in the human. Here, the article worked on air pollution monitoring and prevention systems using advanced ZIGBEE sensor. The sensor data are transmitted wirelessly to the ZIGBEE for the pollution monitoring. The wireless sensor network is formed and the sensed data are transmitted to the cloud. The Geographical information system is implied for the air pollution monitoring in the various area. Finally the ZIGBEE based WSN and GIS is designed for transferring the air polluted data to the destination [5].

Korunoski., al., proposed in urban areas the air pollution monitoring and control is the major work. This is due to the effect of human mortality. To make some steps to reduce the pollution and to control it in this paper they propose the pollution prediction in future and the pollution visualization by pollution measurement and several parameters. In the initial stage the model is made with the help of the interpolation. The proposed model is used to identify the pollution by adding the metrological data.[6]

The pollution evaluation and position of air pollution is source is determined. The deep learning technique is applied to predict the future pollution and also the time to reaching the alarming thresholds. So the processing speed of the system is fast. The client can easy to use of the web service. The method is applied in the real time in the city of Bhopal. The obtained result is promising and satisfactory. The system uses the internet of things to upload the data over the internet. The pollution monitoring is spatial. The accuracy of the method is maximum. By this method the pollution can be predicted each stages and the result are evaluated. The future prediction is evolved in this method it is the added advantage [7].

Guobing et., al., proposed more number of problems in the environment the major problem is the pollution. The pollution affects the air and noise is created. The both air and noise pollution are caused by the automobiles in our country. So it is needed to control the air and the noise pollution if it is not control it affects the human. In this paper they propose the IOT based monitoring of air quality index and noise intensity have been proposed. This technology uses the four stages namely the stages are Air Quality Index stage, Sound Intensity Detection stage, cloud based monitoring stage and the Anomaly Notification stage [8-9]. From the above four stages the initial stage of air quality index is measured consider the presence of various gases. The second stage is the sound intensity is detected by the use of the sensor. The measured data is updated in the cloud by the use of the WIFI module. This method uses the raspberry pi which has the inbuilt WIFI module. The signal alerts the user in the undesired situation. [10]

Ertam et., al., proposed across the globe the air pollution is the major issues. The contaminant content in the air such as CO, CO2, Methane, hydro carbons etc., the air pollution is raised by the use of large volume vehicle and the industrial development. The number of death caused by the air pollution is increases day by day in causing death. Due to high blood pressure, heart disease, poor food and tobacco and air pollution reached under this category [11].

From the results of world health organization the air pollution can affects the carcinogenic it is the major issues for the lung cancer. Here, the paper discussed about the air pollution controlling using WSN wireless sensor network. The sensor can monitor the air and controls the quality of the air. The each node are connected to the different section area to measure the index and compared with the standard values. The data which is collected are transmitted to the nearby substation. To save the power the system is made in sleep mode during when the system is in idle conditions.[12]

Ahmedet., al., proposed the pollution of air in the atmosphere can be measured. The concentration is about in the range of Sn/sub 3 semiconductor sensor. The toxic and non flammable gases are measured in the air pollution monitoring [13].

The system is applied in the real time by the use of the real time operating method. The real time system uses the NH/sub 3/, CO, R115 and R22 ferons and using the TGS sensor. The microcontroller is used for the acquisition of data and it act as the major operating method in the overall system. The simulator for real time air pollution monitoring SIMPA is employed for the environment protection of technical related methods.[14]
Liu et al. concentrated on both the pollution control and measurement for reducing the traffic of the polluted areas. The model is designed which is get placed in the sides of the road or it the lamp post. The model can transmit the air quality data in the specified place wirelessly to the remote server. This can help in control the traffic in the highly polluted area. The method furthered enlarged to sends the information of the air quality to the mobile application which helps intakes up the better routes where the quality of air is good. The pollution evaluation and position of air pollution is source is determined. The deep learning techniques are applied to predict the future pollution and also the time to reaching the alarming thresholds. So the processing speed of the system is fast. The client can easy to use of the web service. The method is applied in the real time in the city of Bhopal. The obtained result is promising and satisfactory. The system uses the internet of things to upload the data over the internet. The pollution monitoring is spatial. The method furthered enlarged to sends the information of the air quality to the mobile application which helps in takes up the better routes where the quality of air is good. The experimental test is made using the proposed method in the real time it produces 79% efficiency. [15]

3. Proposed Method of Air and Water Pollution Monitoring

The main aim of this paper is to monitor and control of air pollution in the various parts of our country. The air pollution is created by the vehicle and industries. The TX and RX pins can transmit the data from the controller to the WIFI module after the data is received is it will be uploading in the server. So the air quality departments can monitors which area is polluted maximum. The location update is made by the GPS. The data will transmit along with the GPS location. This above method plays a vital role in controlling the air pollution.

![Proposed Block Diagram](image)

Figure 1: Proposed Block Diagram

Above Figure 1 shows the square graph of the proposed framework. The model arrangement is made to screen the pollution, the sensors are associated with the regulator when the sensor reach over the edge esteem it will make an alarm message and it wills naturally shutdown the power in the factories. So by implementing the technique in the continuous it will help the general public from contamination free and the productivity of this strategy is about 91%.

4. Results and Discussions

Our proposed system will help in monitoring and controlling of air and water pollution that is happening in industries. Connections are given as per the circuit diagram. The efficiency is about more than 93%. This method is applied in the real time it produces more accuracy. So the health of the human can be protecting from the air pollution. By updating the time to time data of the air pollution in the server the people can view it in the air monitoring application through the mobile. So they can avoid by going to the more polluted affected area. The global warming is controlled and we can able to save many other living things from death.
Above Figure 2 shows the smoke sensitivity values detected at various levels. The gas sensor MQ5 and the pH sensor which is connected to the microcontroller will sense the smoke and water purity which is been emitted by the industries.

Above Figure 3 shows the smoke sensitivity values detected at various levels. Here it is plotted against pH vs time. The entire EB unit of the industry is connected to the microcontroller. When the sensor value exceeds the relay which is connected to the EB unit will help in tripping down the entire power supply to the industry thus helping out in controlling of pollution created by the industry. The following graph represents the gas sensor values at various stages.

5. Conclusion
The article present a novel monitoring and controlling of air and water pollution is been designed in our proposed system. In the existing methods the smoke emitted by the industry is been calculated and no automatic power shut down takes place. In our system we are introducing automatic power shut down when the smoke level exceeds the threshold value. So in following our system the environment will be saved and pure air can be inhaled by the humans. The efficiency is about more than 93%. This method is applied in the real time it produces more accuracy. So the health of the human can be protecting from the air pollution. By updating the time to time data of the air pollution in the server the people can view it in the air monitoring application through the mobile. So they can avoid by going to the more polluted affected area. The global warming is controlled and we can able to save many other living things from death.

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