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REVIEW ON INDUSTRIAL ENVIRONMENT MONITORING SYSTEM USING AVR328

Tanmay Nandanwar[1], Sanchi Dhabarde[2], Swati Bhagat[3], Tushar Tumdam[4]

[1,2,3,4] *Department of Electronics and Telecommunication Engineering, Priyadarshini J. L. college of Engineering, Nagpur, India*

ABSTRACT: *The need of pollution, sound and power generation in India increase day by day due to various factors. The level of pollution has increased in industrialization and urbanization which results in harmful effects on human well being. The main objective of this system is used to design & implement a Wi-Fi based plug and sense smart device for dedicated air pollution monitoring using Internet of Things simply called as IoT. This system is design on a device to IoT for monitoring air pollution, once the sensor has read the particular pressure in industry. In order to monitor, system has implemented in a WSN (Wireless Sensor Network) based on new framework which is based on the data acquisition and transmission. In this system different type of sensor are used, we are introducing a system through which the level of sound and the existence of the harmful gases in the surroundings area can be detected. E.g. Carbon, Carbon dioxide, Sulphur dioxide,etc. This project deals with the control of pollution. A text message is sent to the base station through Wi-Fi module whenever this data is safe for a particular application.*

KEYWORD: WSN, Gases, sensor, Air pollution, IoT (Internet of Things), etc.

1. INTRODUCTION:

A Power Station is additionally referred because the generating station, power station, power house, or generating plant is Associate in Nursing industrial facility for the generation of electrical power. Each power station contains one or additional generators, if the machine is rotating that convert mechanical power into electrical power. There are two types of energy resources specifically renewable and non-renewable energy resources. The most distinction between is renewable energy resource is well generated at interval a brief amount of your time whereas non-renewable energy cannot. For example, renewable energy resources specifically solar energy, wind energy, geo thermal energy, hydro electrical energy. For example of non-renewable energy resources includes coal, petroleum, and fossil fuel.

The development of air contaminated is termed pollution explicit attention is given to factors which can affect have on effect on human health and therefore the health of the natural system itself. Industrial monitoring is the collection of information at totally different locations of industries and at regular intervals of your time in order to provide the data which can be accustomed outline current conditions. We advise to use Wireless Sensor Network (WSN) for this purpose. Due to the quality of parameters, large variations are found between totally different industries. The device nodes are set with gas sensors and that they communicate wirelessly and big variety of outputs collected from individual sensors is compared for a additional correct analysis. Thus, Wireless Sensor Networks provide powerful new ways in which to watch air quality.

Using laboratory analysis, standard air automatic observance system has comparatively complicated instrumentality technology, large bulk, unstable operation and high price. High price and huge bulk build it not impossible for large-scale installation. With the fast development of economy, chemical parcel construction and production activity are more and more frequent, resulting in increasing chance of environmental pollution accidents, particularly pollution accident. Littered with earth science and geographical conditions, pollution are going to be extremely clustered in an exceedingly short time when happening, inflicting nice damage or perhaps extreme destruction to each human and surrounding. So it is particularly important to set up a real-time air pollution monitoring system.

2. LITERATURE SURVEY:

In this paper, level of pollution has increased with times by lot of think just like the increase in population, increased vehicle use, industrialization and urbanization which results in harmful effects on human well-being by directly moving health of population exposed there to it. So as to observe quality of air, a Wireless Sensor Network (WSN) based mostly new framework is proposed which is based on data acquisition and transmission. The parameters atmosphere to be monitored area unit chosen as temperature, humidity, volume of CO, volume of CO_2, detection of outflow of any gas - smoke, LPG. [1]

In this paper, the survey of pollution of air and sound is increasing dead. To bring it under control its observation is majorly suggested. To overcome this issue, we tend to introducing a system through that the extent of sound and therefore the existence of the harmful gases within the surroundings can be detected. The growing pollution at such Associate in Nursing sinister rate has started making hassle for the living beings, could it's high decibels or virulent gases present within the atmosphere leave a harmful result on human's health and so desire a special attention. [2]

In this analysis, a true time observation of three gases area unit simulated in real atmosphere. Gases that area unit monitored during this implementation are Carbon monoxide, carbon dioxide & Sulphur dioxide. In this simulation, these three gases are successfully tested in four areas.Then extended the simulated results to update in net, because the technology increase, the degree of automation i.e reduce the man power within the majority sectors also are will increases. Wireless Sensor Networks (WSN) are gaining the bottom all together of life; from homes to factories, from control to environmental observation. A Process Unit within the Microcontroller, method the signals sensed form sensor with facilitate embedded memory, operating system and associated circuitry. A Radio element which will communicate with the Wi-Fi router that collects the sense pollution gas level from sensor node and forward to pollution server that is in our field.

3. BLOCK DIAGRAM:

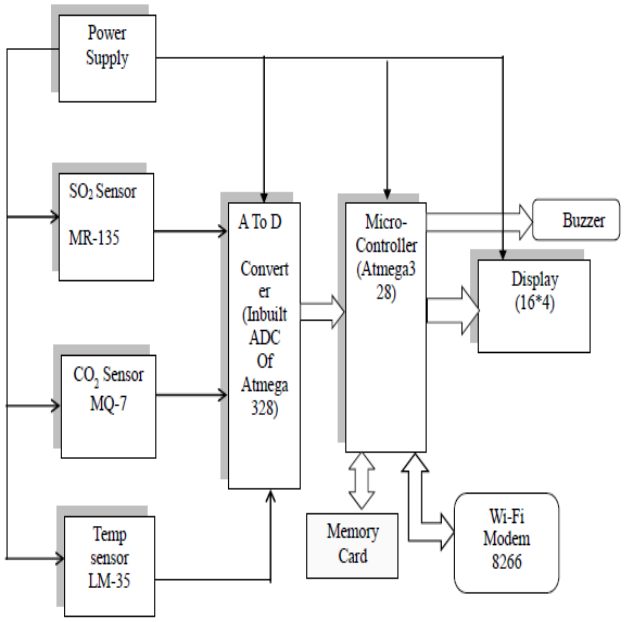

Fig. a

The projected air quality observation is predicated on the block diagram as shown in Fig(a). The information in air is acquired by CO_2 sensor, SO_2 sensor, temperature and humidity sensor, power supply are used. All the information are transfer to the A to D converter (Inbuilt ADC Of Atmega328).After the information acquisition stage, the pre-processing stage comes within which the Arduino processes the information received from the sensors and changes it into additional variable kind to be accessed at the base station and by the user.

After this data are stored in the Micro-Controller (ATMEGA328) & Eencrypted memory card, then 24x7 data are displayed in LCD display. In case all the sensor temperature are overflow then buzzer are indicate, & man power are control be temperature.Wi-Fi acts as a gateway for the communication between Arduino and the base station. The text message though Wi-Fi module marks an extra precaution for the level of CO in air. Temperature and humidity values are also transmitted via a short range communication with the Wi-Fi module. There are some completely different gases present in following table a.

Gases	Atmospheric content [In parts per million]	Minimum value [In parts per million]	Maximum value [In parts per million]
Carbon monoxide	0.2 (ppm)	1 (ppm)	9 (ppm)
Carbon dioxide	3-9 (ppm)	350 (ppm)	450 (ppm)
Temperature	**-40 to 85^{0}C**	-117°C (100°C)	150°C - 125°C

4. CONCLUSION:

This system is employed to watch numerous parameters of atmosphere using ATMEGA 328 microcontroller. The WSN Technology is planned to enhance quality of air, with the utilization of technologies like WSN which boost the method of watching aspects of atmosphere like air quality watching issue planned during this paper. The detection and watching of dangerous gases is taken into consideration and connected precautions are thought of here within the kind of a buzzer so the mandatory action may be taken. It's calculated that this method can have an excellent acceptance within the market because it may be centralized system for a complete watching operate. This watching system is increased by adding wireless network like a memory card for storage of values from gas sensors can be used like Carbon dioxide (CO2), Carbon monoxide (CO), Temperature. Another aspect of measurement particulate matter can be introduced to create it additional advanced.

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