IOT Based Automated System for Air Pollution Detection and Monitoring in Vehicles

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Abstract

Pollution is now a common place term that our ears are attuned to. We hear about the various forms of pollution and read about it through the mass media. Air pollution is one such form that refers to the contamination of the air. As the usage of vehicles is more in these days, the air pollution is increasing drastically. This paper mainly concentrates on air pollution control from vehicles. There are several reasons for this air pollution. They are the release of burnt fuel byproducts into the atmosphere, evaporation of fuel, particulate matter, lack of Vehicle maintenance. By placing gas sensors at the exhaust of the vehicle, the emission level from vehicles is continuously monitored. If pollution level is recorded beyond the standard values from government, then the necessary steps will be taken by the administrator.

1. Introduction

The beginning of the 21st century was the time when importance for Environmental awareness was instigated. Air is the mixture of gases that fills the atmosphere, giving life to the plants and animals that make Earth such a vibrant place. One of the major concerns regarding the environment is air pollution. It occurs when any harmful gases, dust, smoke enters into the atmosphere and makes it difficult for plants, animals and humans to survive as the air becomes dirty. The advent of the Internet of Things and cloud computing brings a new approach, enabling to collect, transfer, store and share information on the logistics flow for better cooperation and interoperability among devices. The smoke detector detects harmful gases and gives it to the Microcontroller to check the maximum percentage of respective content in the smoke released by vehicles. If it exceeds the threshold level the system, sends message to the nearest service center and give an alert to the user or driver. Then it also monitored by the administrator through GPRS with their database. During this time, GPS finds the location of vehicle based on GPS values; service center can trace and service the vehicle. This paper will benefit to the society and help in controlling the air pollution.
EXISTING SYSTEM

It detects co using gas sensor. If emitting gas level exceeds the threshold level then it notified to the users mobile phone. GPS is enabled to get the position of the vehicle.

DISADVANTAGES

It only detects the carbon monoxide. Pollution Detection and Tracking which lacks in controlling the pollution.

PROPOSED SYSTEM

This system detects co, so2, no2 gases which are harmful. Sends massage to the nearest service center and alerts the owner of vehicle. Data send to the administrator for monitoring and controlling pollution caused by the vehicle.

ADVANTAGES

The main advantages of the proposed system are,

- Interoperability
- Cooperation
- Accuracy
- Low cost

BLOCK DIAGRAM
METHODOLOGY

The main source of pollution in cities is due to vehicles. The increase use of vehicles in cities results in vital increase in the emission load of various toxins into air. The increase in environmental problems will affect the human health in urban places. The proposed air pollution monitoring system provides the real-time information about the level of air pollution and alert in cases of drastic change in the quality of air. GPS is mainly used to find location of vehicle and GSM is used to send messages to service centre. Microcontroller plays a vital role in this embedded system. The remaining modules are GPS, GSM, LCD, buzzer and relay are controlled by microcontroller. Microcontroller takes input from smoke sensor output and based on smoke sensor output, microcontroller controls the remaining modules. The microcontroller is used to perform the following functions, compare emission values with standard values prescribed by government, activates the timer and alerts the buzzer to indicate vehicle will be stopped after sometime due to the violation of standard emission values. Microcontroller activate the GPS to find location of vehicle and display in terms of latitude and longitude. GSM module is activated by microcontroller to send GPS values to service centre through text message.

CONCLUSION

Thus the system can be used to detect and monitor the air pollution caused by the vehicles. The monitoring process plays a vital role in the controlling procedure and also used to reduce the pollution caused by vehicles with low cost.

REFERENCES