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Vehicle Emission and Control System

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Abstract- *Air pollution is rapidly increasing due to various human activities, and the occurrence of particulates, chemicals or biological resources into the environment cause several diseases resulting in discomfort or loss of human lives. The major cause of increasing air pollution is the emission of the pollutant like CO Monoxide, Hydro Carbon, Non-Methane HC by vehicles so it required controlling the same for public health and the natural environment.*

This project reviews our current knowledge of automotive emissions, including standards, control technology, fuel economy, fuels and additives, in-use emissions, measurement methods for unregulated pollutants, and models for predicting future automotive emissions..

Key Words: **RFID cards, Emission violation, Collection Reports, ID 3, Vehicle Emission Monitoring.**

1. INTRODUCTION

Air pollution is rapidly increasing due to various human activities, and the occurrence of particulates, chemicals or biological resources into the environment that cause unexpected, humans death, or disease, damage source of revenue, or spoil the natural environment. By causing global warming, the rise in sea level, change in seasonal patterns, rainfall pattern, extreme summer and winter temperatures, droughts and floods, etc. along with various endemic and epidemic diseases. There is a lack of understanding of air pollution and related health risk. The condition of air quality in India is poor. In reality, pollution content in the air is most vital environmental problems in developed and urban cities. So it's very important to control pollution and avoid these problems.

We propose a system that provides information about air quality in crowded urban areas. The objective is to control the air quality by designing a system that can actively identify and monitor pollution and polluted areas in traffic. It is beneficial for many people such as asthmatics, people concerned about the air quality, jogger, etc. It can also help to manage the quality of air and to identify major vehicle pollution sources inside of a city.

When the vehicle stops at signal then by using RFID emission parameters are calculated and upload the data to the server. By monitoring all the content if the particular vehicle crosses the limit then fine is deducted from the user's account. A scientific model is proposed to control environmental pollution. The ultimate solution of global warming climate [2] change problem is making the people aware about the causes, consequences, and control of energy consumption through environmental consciousness.

The environmental power generation scheduling (EnPGS) model,[1] which coordinates the operating cost and the emissions of these pollutants, including the emissions during the start-up and shut- down processes generating units that are or are not equipped with a variety of air pollution control technologies. The air quality index (AQI) has become an important way of measuring and reacting to episodes of serious pollution. It is calculated using the procedure described in [4]. Different levels of alerts are issued by the government based on the forecasted AQI. Corresponding emission control targets are suggested for different industries, and these will become mandatory in the near future [5]. Venkatesh et al. [6] proposed a model that minimizes the operating cost and non-specific emissions.

2. EXISTING SYSTEM

The Existing System which calculates the emission's of the vehicle are all offline system and generally not accurate. The people which calculate the emission value of the vehicle is not authorized by Pearson, which is appointed by the government. The Government Centre which calculates the emission of a vehicle (i.e. Pollution under Control (PUC)).The people have to wait in long queue to get vehicle emission generated. So our proposed system will be more effective than existing system because we will remove the offline process and switch them to completely automatic process.

3. PROPOSED SYSTEM

Prevailing air quality scenario in major Indian cities demands formulation of comprehensive action plans for improvement in the non-attainment cities and towns. These Action Plans need to be realistic, technically feasible & economically viable to deliver the intended benefits. Since air quality in urban areas is affected by a variety of complex source mix, the objectives of the study were defined so as to have the better understanding of major sources like vehicle and their contributions to air pollution; and to formulate strategies for improving air quality that is based on detailed scientific Investigations.

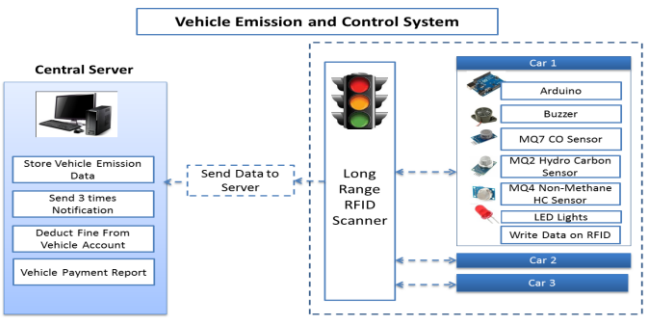

Fig-1: Diagram for Proposed System

The figure shows the architecture diagram of the proposed system. Monitoring of vehicle emission deals with detecting all the hazardous pollution gases from the car/bike emission which includes CO, Hydro Carbon and Non-Methane HC. The system starts monitoring the data as soon as the vehicle is started and records it on sd card. Each kit which measures the emission of the vehicle is mapped as per vehicles engine type i.e. petrol/diesel. Government has different norms for different vehicles based on their type i.e petrol/diesel. The table is as follows. hartridge is a smoke unit.

Table 1: Petrol Engine

Emission value	Emission %	Validity
less than 50 hart ridge	<3 %	6 months
less than 50-60 hart ridge	3- 4 %	4 months
less than 60-65 hart ridge	4-4.5 %	2 months

Table 1: Diesel Engine

Emission value	Emission %	Validity
less than 50 hart ridge	<1.5 %	6 months
less than 50-60 hart ridge	1.5- 2.5 %	4 months
less than 60-65 hart ridge	2.5-3 %	2 months

Whenever a vehicle is stopped at the nearby traffic signal, it sends all its emission parameters along with engine type to nearest traffic pole that has an RFID receiver. RFID Transmitters then scan all such vehicles and uploads their data to the server.

Traffic poles send data to the server using a portable wifi shield/ GSM modem. Once the data reaches the server it is saved to MySQL database. If the vehicle is violating any of the emission rules as mentioned in the above table, then the vehicle owner is sent a message. Emission violation is reported to the owner only for the first 3 times, with every time a fine is deducted from the owner's security amount. Authorities can see total fine collected from all vehicles. They can also see the history of pollution levels.

4. EXPERIMENTAL RESULT

The increasing air pollution creates uneasiness, or loss of human lives, spoil the normal atmosphere. This system gives the monitoring of maximum limit of air pollution. JavaScript and HTML 5 used for developing client-side applications which are open source, cross-platform. JavaScript is runtime environment. The system's GUI was designed in JSP. Core Technologies used were JSP, J2EE etc. The overall development was done in the Eclipse IDE and for DB we used MY SQL GUI browser.

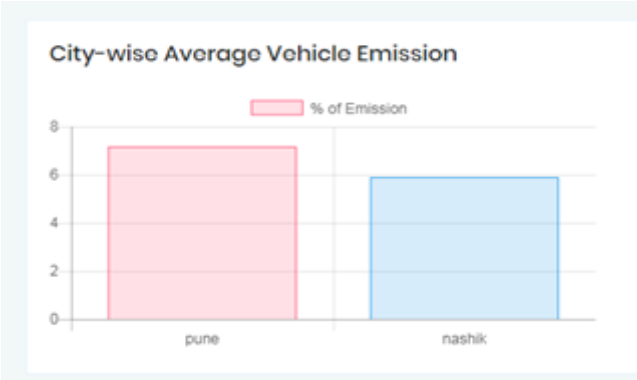

Fig-2: City –wise Vehicle Emission

The figure shows the city wise average emission graph. Which gives that percentage(%) of vehicle emission in Pune is greater than that of Nashik. Also by using vehicle number and owner name, we can see the history of the emission of that particular vehicle. As shown in below figure.

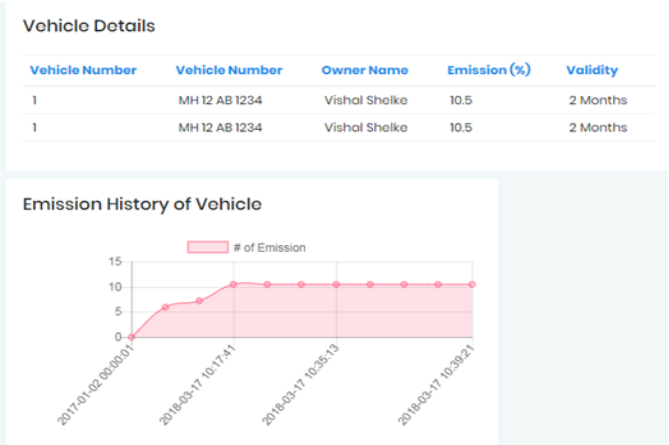

Fig-3: Emission History of Vehicle

5. CONCLUSION

This system gives control on the emission of exhaust pollutant responsible for pollution. It also helps in city-wide pollution management. It implements the pollution limit rule for everybody at all the time.

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