



# KNOWLEDGE INSTITUTE OF TECHNOLOGY

Department of Electronics and communication Engineering

## “Detection Of Air Pollution in Vehicles Using Embedded System”

### TEAM MEMBERS

AJITH	R	611217106004
HEMALATHA	M	611217106037
DEEPAK	K	611217106019

### PROJECT SUPERVISOR

Prof . K.GOPI  
AP/ECE Dept.

## Project Domain : Internet of Things, Embedded system

### Reason for selection

- Toxic Gas level increasing.
- It can cause Air pollution issues.
- It can cause human health issues.



# The main objective of this project is :

- “To prevent, control and abate pollution of air , to protect the environment from any degradation by effective monitoring and implementation of pollution control legislations. The aim of the project is to monitor and control the pollutants in the vehicle by using the pollution control circuit.

# Motivation for the project:

- ▶ The beginning of the 21st century was the time .when importance for Environmental awareness was instigated. One of the major concerns regarding the environment is air pollution. Air pollution contributes to the green houses gases, which causes the greenhouse effect, whose side effects are now well known to all of us after the findings about the hole in the ozone layer. Air pollution is not only harmful to the environment but, also to all other living beings on earth. Air pollutants that are inhaled have serious impact on human health affecting the lungs and the respiratory system; they are also taken up by the blood and pumped all around the body.

# Motivation for the project:

- These pollutants are also deposited on soil, plants, and in the water, further contributing to human exposure and also affecting the sea life. Vehicles are one of the major contributors to air pollution apart from industries. The main pollutants from vehicles are the oxides of carbon and nitrogen, which can be easily detected these days with the help of semiconductor gas sensors. Therefore, in this paper an idea is suggested, which would be very helpful in reducing the amount of pollution from vehicles

# Literature Survey 1

- ▶ In the literature survey conducted, there are different approaches developed for detecting air pollution in vehicles. For instance, in paper **Rushikesh** et al. the concept talking about is to control the pollution level with the help of MQ sensors, RFID and Arduino. If the pollution level is above the threshold the authorities will be informed about it. The microcontroller then reads the level and it will be sent to the vehicle owner and to the server for future analysis.



# Literature Survey 2

- ▶ In paper **Manna** et al. [2] the high traffic area is selected to monitor the pollution level with the help of RFID placed at a short fixed distance along with the sensor nodes at the roadside. The tag number of the vehicle is identified by an RFID reader and is transmitted to the server. When the sensor level is high than the threshold, a message is sent to the owner.

# Literature Survey 3

- ▶ **Abu Jayyab** et. al have proposed Air Pollution and Insurance Based Vehicle Locking System which is designed with Atmega processor that controls the engine of vehicle based on the values of the sensors and preset date on the controller [3]. Every vehicle which crosses the pollution threshold level in an area, the vehicle's engine will be automatically turned off by the engineered circuit



# Literature Survey 4

- **Suvitha Vani.P** This method to eliminate CO & CO<sub>2</sub> from two Wheeler Motorcycle Exhaust Gases by adsorption technology. Adsorption is done in an adsorber-like structure that includes a charcoal pad, through which the exhaust gases pass. Charcoal powder is used as an adsorbent which can significantly reduce the total cost. The adsorption-based model can be easily adapted to a two-wheeler emission portion. In this system, there is a considerable amount of CO<sub>2</sub> reduction following adsorption from exhaust gases with great output. Here, the CO<sub>2</sub> adsorption performance of charcoal is predicted to be 20 %. It is beneficial to the society by reducing the release of pollutants into the atmosphere from vehicles.

# Existing System :

- ▶ The particular system contains a sensor, which detects the parameter (Carbon monoxide) that causes vehicle pollution. The sensor used is sensor detecting carbon monoxide (MQ7). Whenever Carbon monoxide level increases, the sensor senses the situation and the vehicle owner is given an alert or sign. The emission levels are transmitted to Pollution Control Board via GSM module.

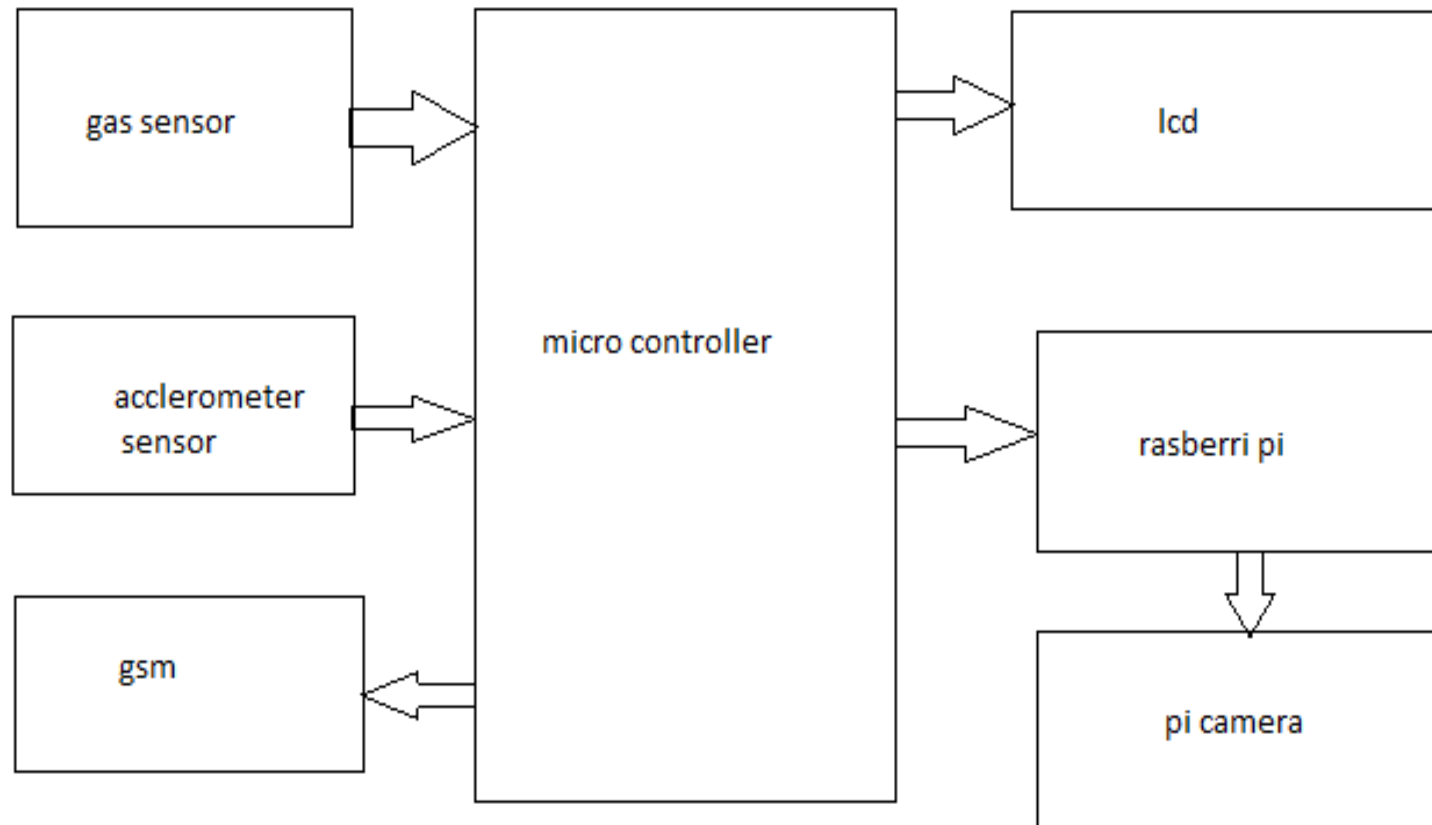
# Proposed System :

- ✓ The proposed method presents a real-time detection of air pollution vehicles by Analyzing system that can detect pollution level of harmful gases like carbon monoxide, nitrous oxide and methane.
- ✓ When the limit of the pollution level reaches the system will alert the owner and the RTO officers by using with the help of IOT.
- ✓ Based on the level of pollution measures has been taken by Govt officers.

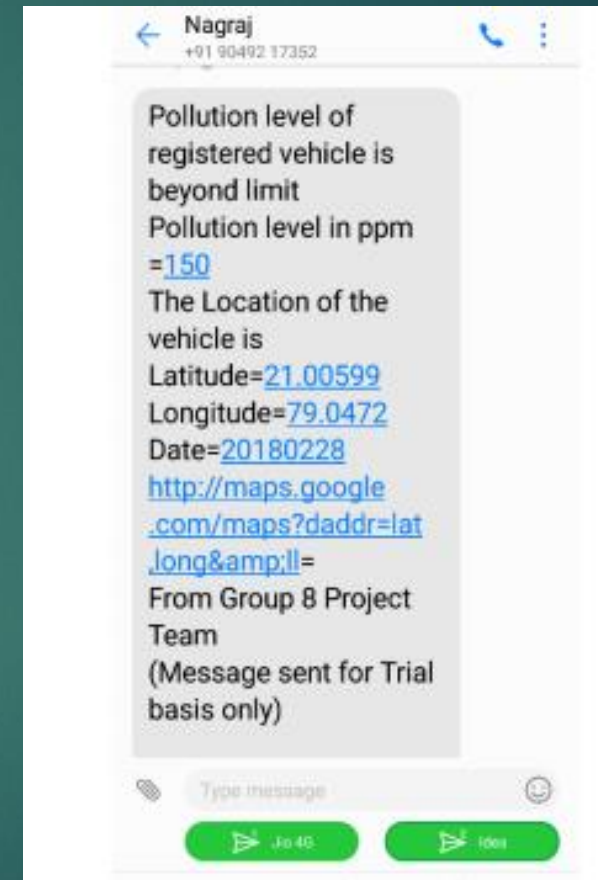
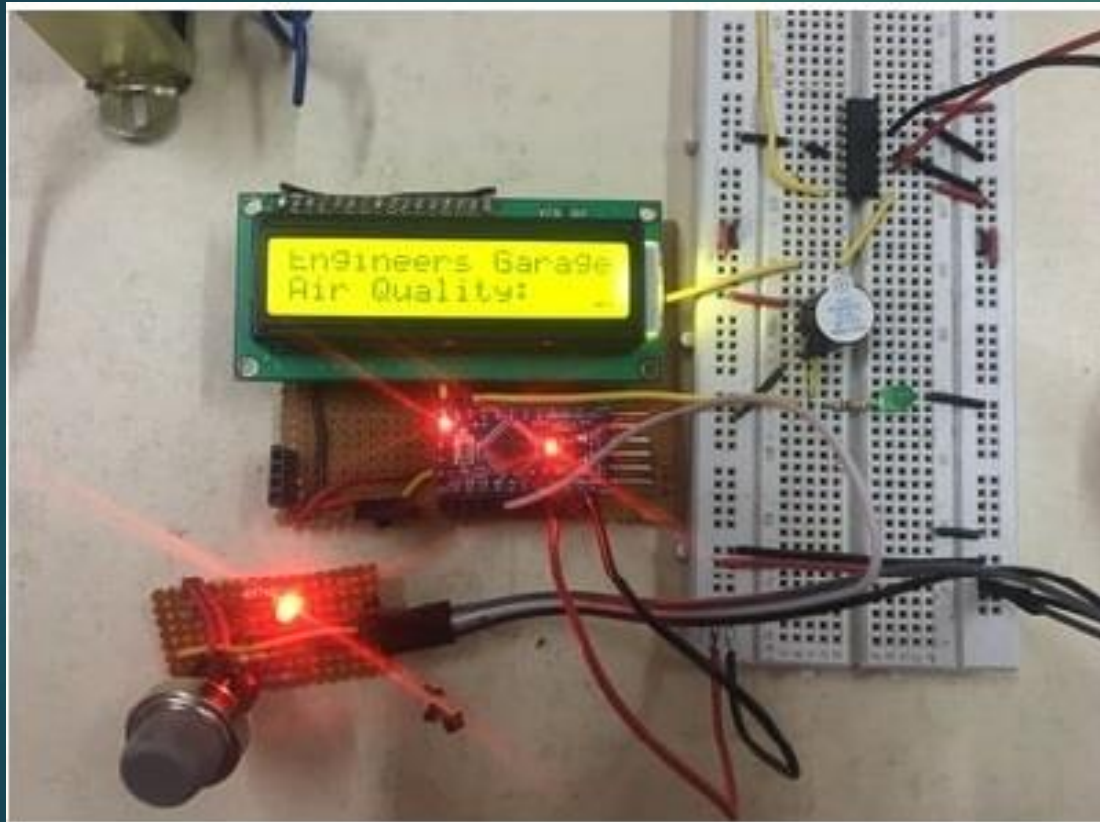
# Merits:

- It helps to track data in real-time.
- Unacceptable vehicle emissions can be reduced to 98%
- The emission of the vehicles can be easily tested in advance by the vehicle owner without a visit to RTO office.
- Also, the user can service the vehicle ahead of time on getting the alert message regarding pollution level.

# Methodology



# Expected Output :





Thank You !!!