

Vehicle Automation using GSM

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Abstract— Traffic congestion degrades the ambient air quality and proves to be a fatal risk for the entire population. The aim of this paper is to monitor the tremendously increasing air pollution by using GSM module technologies and thereby keep the vehicle owner updated about the PUC levels of his/her vehicle. In this system, RFID (Radio frequency identification) is used as a low cost technology to read as well as transmit the emission information of vehicles. RFID will display the emission level information on cloud storage. In this paper, a wireless inspection and notification system (WINS) through the concept of RFID Technology is proposed. Radio frequency identification (RFID) technology as a low-cost and mature wireless communication method is adopted to collect and transmit emissions information of vehicles and Global System and Mobile Communication (GSM) concept is proposed. By applying the system, it is possible to smoothly realize a green traffic network.

Keywords: GSM module, smoke sensor, water level sensor, LCD, Microcontroller

I. INTRODUCTION

This project mainly benefits the manufacturer as in to help in overall monitoring of his products. It also helps in maintaining good relations between the manufacturer and his customers. With the increasing of automobile quantity, especially in some metropolis, it is very impending to resolve the problem of air pollution resulting from automobile exhaust gas. Along with continually updated wireless communication and signal acquisition technologies through the concept of GSM, an effectively wireless inspection and notification system is being developed.

In the system, the cars need to be tagged with a unique identity (ID), their emissions information will be transferred with the ID to a backend system. Then, the manufacturer can determine which car fails to this test (exceed the standard) and give a notice (message & email) to ask drivers to repair their cars.

In our project we had attempted the three parameters wise temperature, humidity, light and CO₂. In today's life microprocessor is used in the green house. But we are using the micro-controller in replace of the microprocessor. Therefore our system is embedded system used only for the green house parameter control.

II. PROBLEM DEFINITION

As the number of vehicle are increasing in day to day life the proportion of the air pollution which is cost by the car is increasing and the technical problem related to the car also increases.

III. RELATED WORK

In the earlier research paper we came to know these system is work using RFID module also. In that all the data can accessing by using the NFC. NFC is mainly responsible for collecting and transmitting emissions information of vehicles. NFC reader will be installed on the traffic light. It is well known that every car must stop in front of the red light for a long time. The stopping time is also the best timing for NFC reader to collect the emissions information from cars. An infinite number of RFID readers will be required as there are countless traffic lights in the traffic network of a city. To overcome this drawback, a maximum spanning tree (MAXST) algorithm will also be incorporated. By the algorithm, the amount of traffic lights needed for installing RFID readers can be reduced while at the same time the inspection of all vehicles in the city can be guaranteed.

IV. PROPOSED SYSTEM

This system is designed so as to follow the few steps to reach to the results or the output of the system. It can be seen that, first of all, initialization of the system occurs. It involves deciding the node points. It can be the top portion of any traffic signal or any other stationary object. Next step is to check whether the vehicle is registered or not. If the vehicle is registered into this process, then it will pass through the remaining steps, else it would exit the process there itself. Further, the welcoming message would be displayed on the LCD screen so that the vehicle owner can identify his/her Identification.

Later, the sensors would collect the emission levels and convert it to digital values which can be read by the sensors installed on any junction point. These values are then compared with the reference values. If they exceed, only then an alert message is sent to the registered mobile number, else not.

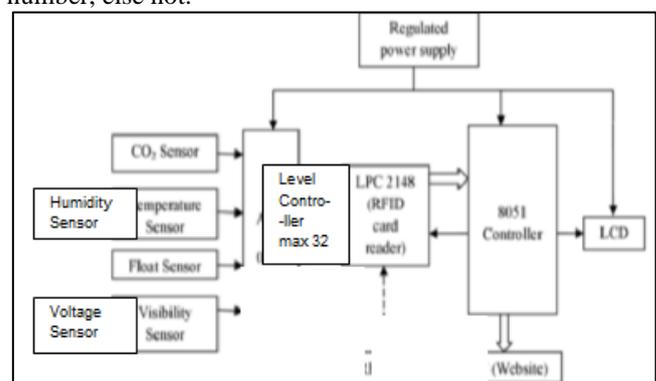


Fig. 1: System Architecture

A spanning tree is a sub-graph or a tree of an undirected graph that connects all the vertices together

without simple cycle. Theoretically, there are many spanning trees for a single graph. Therefore, in practice the idea of spanning tree is often used to determine the shortest path or the simplest structure, resulting in minimum spanning trees (MST) problems. To obtain the MST, each of the edges (line connecting two vertices) of the graph is assigned with a weight, which is a value showing how important that edge is. Then, by comparing the sum of weights of every spanning tree, the one with the minimum sum of weights would be the MST.

In the open literature, many efficient algorithm of MST are available. Some traditional ones include the well-known Prim's algorithm (or Prim-Jarnik algorithm), the distributed algorithm by Gallager and the randomized linear-time algorithm by Karger.

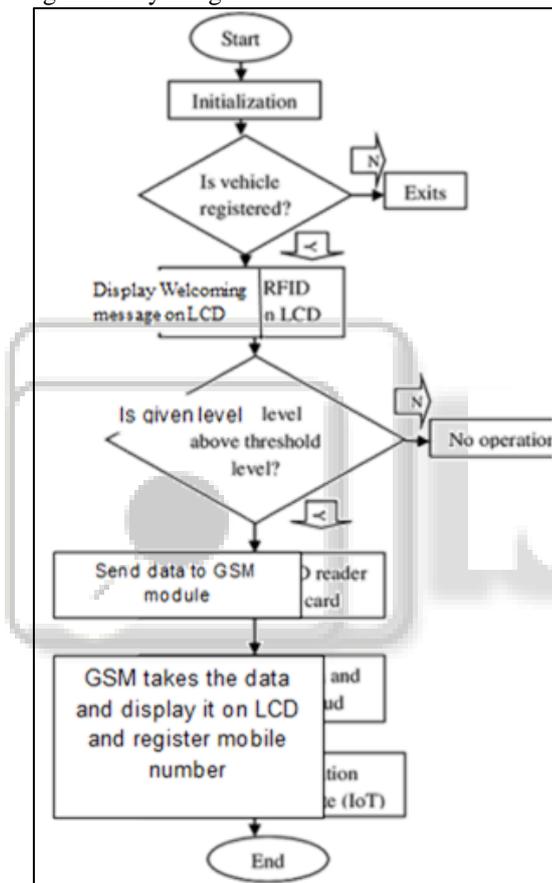


Fig. 2: Flowchart of the System

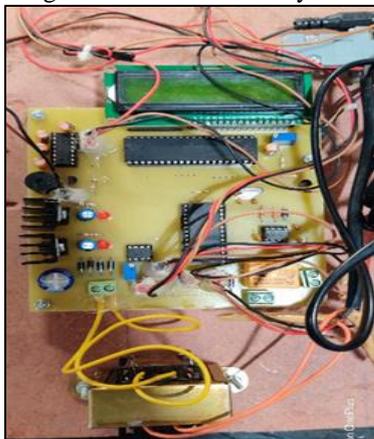


Fig. 3: Project Model

First the sensors detected the current level tally with the set level value and if the detected value is greater than the set value for that we have use the code is as follows:

```

Check_Level:      mov a,ADC_op_Level
                  clr c
                  subb a,#50
                  jnc chk_low_Level
                  setb Relay
                  clr 02H
                  clr tr0
                  clr Buzzer
                  call delay1sec
                  mov dptr,#MsgFaultDetectL
  
```

Here we call the LCD display for given the output of the machine or sensor:

```
call LCDdisp
```

At the same time we have to need the output display on the mobile via SMS hence we call:

```
call Send_Level_sms
```

```
call delay2sec
```

```
clr Relay
```

```
ret
```

If the sensors detected level is lower than the set level then it could not be take any action

```
chk_low_Level:
```

```
ret
```

Same as the other sensors also the working as same way.

V. OUTPUT

When we started our system then at the initial stage first in welcoming message Main aspect of the Project is showing as "GSM based Pollution Control System." These all outputs are shown in LCD Screen and give the notification on register mobile number.



Fig. 4: Initial Stage

Then all sensors detects its respective ranges and given to ADC by using level controller all ranges are given to Micro controller by Max 32. It tally the respective ranges and ranges set by the coder. If the voltage is more than required voltage then it's showing output as below.



Fig. 5: Voltage Output

Same as, the other ranges of the sensors are tally with the given set ranges and given the output to the user as below.

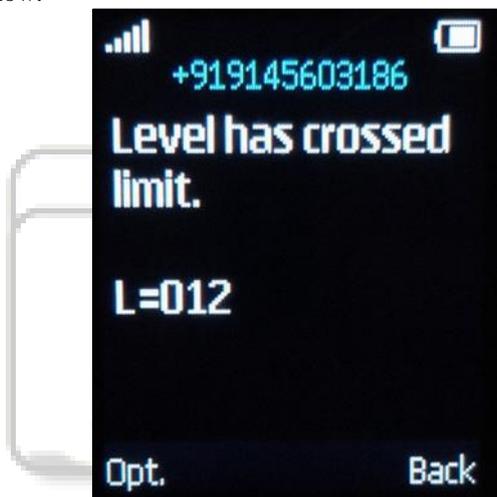


Fig. 6: Other Sensors Output

VI. CONCLUSION

A remote monitoring allows the quick detection of failing devices without the need of long searches and waste of personal time. By monitoring the emissions data, the engine health can be easily inspected and examined.

With this design system, the idea of a Green environment can also be realized. It not only electively improves the environmental quality, but also helps vehicle owners to save a lot of unnecessary troubles compared to the traditional emissions inspection test.

The uid level detection also helps in preventing severe road mishaps may be due to brake failure.

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