Vehicular pollution monitoring using IoT

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Abstract:~Nowadays, vehicle usage is very much higher. Most of the people are using gas fuel instead of petrol or diesel. This method is quite easy but on the other hand it is harmful also. So, these types of vehicles required proper monitoring. The project aims to modify an existing safety model employed in domestic field. The aim of this project is designing a microcontroller based toxic gas detection , and if the gas has detected it automatically alert the owner and also the vehicle door will be automatically opened then it transmits the warning message to the authorized user. This safety system can be used in any automation field, Houses etc.

I INTRODUCTION

The monitoring system of harmful gas inside special vehicle has many advantages such as advance performance, high reliability, etc. The detection unit reaches the maximum threshold level, at the same detects any toxic gas it send an SMS through GSM Modem. User can send SMS and receive SMS through GSM Modem, based on that User can control some appliances in host section. This is a very compelling reason that justifies designing such a safety system Many air pollution systems in various areas were reported in literatures. In 2011, Dan Stefan Tudose, Traian Alexandru Patrascu, Andrei Voinescu, Razvan Tataroiu, Nicolae Tapus etal. Proposed an environmental air pollution monitoring system that measures CO2, NO2, CO, HC & NH4 concentration using mobile sensors in urban environment. The acquired information about air pollution in surroundings is then stored on central on-line repository system periodically. It uses a wireless GSM modem connection for transferring data to a central computer.

In 2012, Amnesh Goel, Sukanya Ray, Prateek Agrawal, Nidhi Chandra et .proposed a wireless sensor network to monitor air pollution levels of various pollutants due to environment changes. This system proposes a method which mainly focuses on longer sustain time period of sensor network by effectively managing energy in sensor network, effectively processing of information between various sensor nodes [2].

In 2011, Wenhu Wang, Yifeng Yuan, Zhihao Ling etal. [3], in order to comply with requirements of oil and gas industry, an air quality monitoring system was proposed based on Zigbee wireless sensing technology. It uses Zigbee wireless network to send results to the monitoring center so that, if some abnormal situations happens, a quick warning will be generated to remind staff to take effective measures to prevent major accidents and protect human lives in industry. volatile organic compounds the World Health Organization (WHO) states that 2.4 million people die every year of a result of air pollution so, continuous monitoring of air pollution is necessity to day

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II SYSTEM ANALISIS

Problem Statement:
Identify status when accident occurs
Manual operation for transferring information
Controlling through man
Difficult to senses fuel leakage

Proposed System:
Effective safety system
Systematic approach for monitoring and control
Transferring messages through wireless technologies
Easy way of sensing gas and temperature

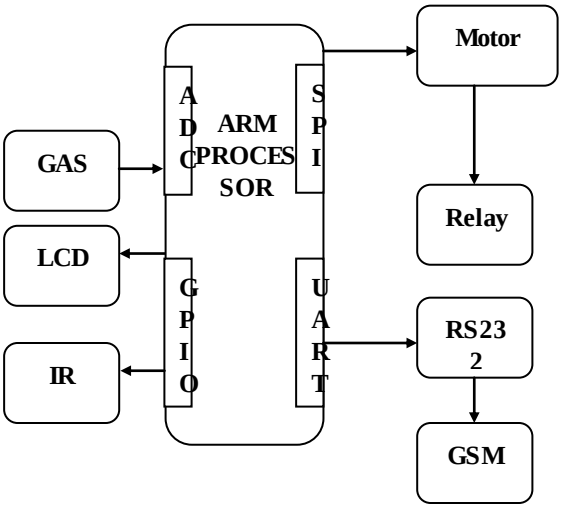
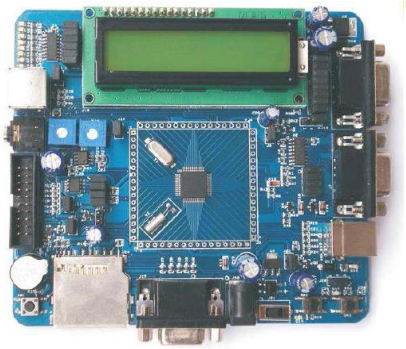


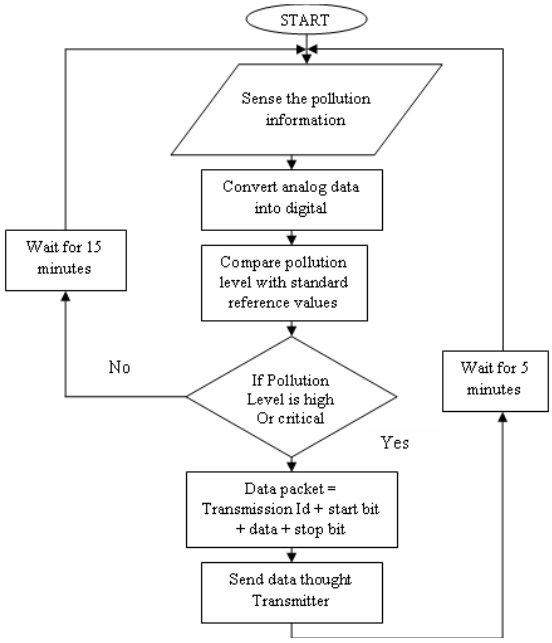
Figure 1Block Diagram

The LPC2141/2/4/6/8 microcontrollers are based on a 32/16 bit ARM7TDMI-S CPU with real-time emulation and embedded trace support, that combines the microcontroller with embedded high speed flash memory ranging from 32 kB to 512 kB. A 128-bit wide memory interface and a unique accelerator architecture enable 32-bit code execution at the maximum clock rate. For critical code size applications, the alternative 16-bit Thumb mode reduces code by more than 30

% with minimal performance penalty. Due to their tiny size and low power consumption, LPC2141/2/4/6/8 are ideal for applications where miniaturization is a key requirement, such as access control and point-of-sale.



III FLOW CHART



IV CODINGS

```
#define Relay1 RB0
#define Relay2 RB1
unsigned char ch2,ch0;
unsigned char DT(void);
unsigned char CU(void);
void Serial_init(void);
void DelayMs(unsigned int Ms1);
void DelayMs(unsigned int Ms1)
{
  int delay_cnst1;
  while(Ms1>0)
  {
    Ms1--;
    for(delay_cnst1 = 0;delay_cnst1 <110;delay_cnst1++);
  }
}
void main()
{
  Serial_init();
  TRISA=0xff;
  ADCON1=0x00;
    DelayMs(10);
    TRISB = 0x00;
    PORTB = 0x0F;
    RBPU = 0;
    Relay1 =1;
    Relay2 =1;
    while(1)
  printf("AT+CMGS=\"+917845682027\"\r");
printf("EB No :E281 Using Over Load\r\n");
  putch(0x1a);
  DelayMs(250);
  TRISC=0xc0;
    TXSTA=0x24;
    SPBRG=64;
    RCSTA=0x90;
    TXIF=1;
```

V CONCLUSION

As discussed in this paper, recent technological developments in the miniaturization of electronics and wireless communication technology have led to the emergence of Environmental Pollution Sensor Network. Wireless Air Pollution Monitoring System provides real-time information about the level of

air pollution in these regions, as well as provides alerts in cases of drastic change in quality of air. This information can then be used by the authorities to take prompt actions such as evacuating people or sending emergency response team. Node is designed for minimum power consumption with various strategies like sleep mode scheduling and time delay based design. Selection of low power modules also helps in improving power dissipation characteristics. It uses an Air Quality Indexto categorize the various levels of air pollution. It also associates meaningful and very intuitive colours to the different categories, thus the state of air pollution can be communicated to the user very easily. The system also uses the AQI to evaluate the level of health concern for a specific area.

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