

GSM Based Vehicle Fuel Monitoring and Theft Detection System with SMS Indication

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Abstract

*This paper presents the design and structure for with growing the values of oil, fuel theft has become very common incidence. From economical point of view a system is derived that will take care of the practices. This system makes use of smart fuel theft detection with GSM alert. Using the ARM7microcontroller, the real time position of vehicles and its fuel content is sent to owners mobile in case of intrusion. The system includes microcontroller, GSM modules . The microcontroller that converts the data which sent to the user in text format. This smart system gives 24*7 access to fuel consumption alert when fuel drains and storage tank leak immediately identified.*

Keywords— GSM Modules, microcontroller, buzzer, battery

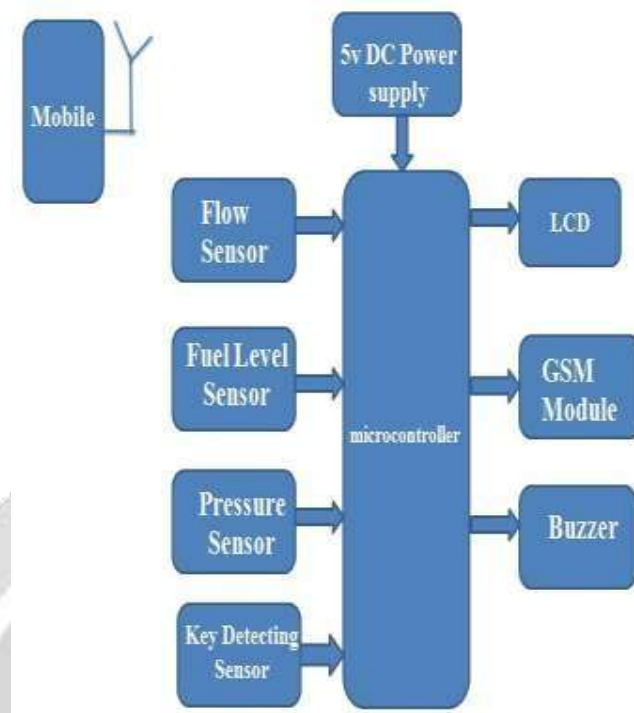
I.Introduction

All internal combustion engines sequentially on liquid fuel have to be very fuel effective from economic point of assessment. All these engines are prepared with most forward-thinking automated fuel indication devices. These are system built devices. There should be some provision at the user level to know the quantity of fuel at all times. The care and safety of fuel is of utmost importance. In the recent years, escalating oil demands and costs of fuel are increasing. This indirectly increases the overheads of many businesses and those with large vehicle fleets.

Global oil source and request forecasts for 2015 have altered knowingly just, but these changes have mostly cancelled each other out: the outlook is still one of a market unevenly in balance. However, it is at times of rapid market change that forecasting become most difficult. In July of 2014, earlier crude prices distorted forecasts from the International Energy Agency, US Energy Information Administration and OPEC recommended that world oil request would increase by about 1.35 million b/d in 2015 and that the global supply/demand balance would be very slightly positive. most difficult. In July of 2014, earlier crude prices collapsed, forecasts from the International Energy Agency, US Energy Information Administration and OPEC suggested that world oil request would upswing by about 1.35 million b/d in 2015 and that the global supply/demand balance would be very slightly positive.

To provide the needs of fuel savings due to a one of the few above mentioned problems, the SIM 900 GSM module is used over a Global System for Mobile Communications (GSM) network to provide a practical and cost-effective remote fuel level watching system. The mine from subversive must be sized, processed and handled effectively and with efficiency coal is keep in bins or storage towers in plants and conjointly in outside areas. Little plants sometimes store coal in storage towers and bunkers directly provide the furnaces for sooner or later operation. Coal reserves for big plant area unit store outdoors next to the plants by stock support schemes.

II. SYSTEM ARCHITECTUR



Construction of a remote fuel-level sensor followed by remote monitoring of the fuel level. Monitoring is done by sending messages from a compatible mobile phone. Messages are sent to the owner at regular interval of time. One more distinguishing feature of this research is the locking of vehicle using remote password. Siren can also be enabled during intrusion.

This fuel-level monitoring system will ensure efficient use of fuel, minimize operating cost, and help understand maximum revenue. This system is user friendly, easy to attach and little cost

III. Flow Sensor

Measure liquid/water movement for your solar, water conservation systems, packing tanks, water recycling home applications, irrigation systems and ample more. The sensors are firmly constructed and deliver a digital pulse each time an sum of water [6].

GSM Module

This is a GSM/GPRS-well-matched Quad-band cell phone, which works on a frequency of 850/900/1800/1900MHz and which can be used not only to contact the Internet, but also for verbal announcement (providing that it is linked to a microphone and a minor loud speaker) and for SMSs. Superficially, it appearances like a big package (0.94 inches x 0.94 inches x 0.12 inches) with L-shaped contacts on four sides so that they can be soldered both on the side and at the bottom. Internally, the module is managed by an AMR926EJ-S processor, which controls phone communication, data communication (through an integrated TCP/IP stack), and (through an UART and a TTL serial interface) the communication with the circuit interfaced with the cell phone itself. The processor is also in charge of a SIM card (3 or 1,8 V) which needs to be attached to the outer wall of the module The module is supplied with continuous energy (between 3.4 and 4.5 V) and absorbs a maximum of 0.8 A during transmission.

IV. ATmega16 Microcontroller

The ATmega16 is a low-power CMOS 8-bit microcontroller grounded on the AVR improved RISC architecture. AVR is a altered Harvard architecture 8 bit RISC single chip microcontroller which was developed by Atmel in 1996. AT mega 16 is great performance low power Atmel AVR 8bit microcontroller with 8kb of in system self-programmable memory. There are 131 powerful instructions

present in ATmega16. Most of single clock cycle execution and 32*8 general drives.

- High-performance,
- Advanced RISC Building
- 131 Influential Commands – Most Single-clock Cycle Performance
- 32 x 8 General Resolve Working Registers
- On-chip 2-cycle Multiplier
- Two 8-bit Timer/Counters with Separate Presales and Compare Modes
- One 16-bit Timer/Counter with Separate Presale, Compare,
- Four PWM Channels
- 8-channel, 10-bit ADC
- Byte-oriented Two-wire Serial Interface
- Special Microcontroller Features
- Power-on Reset and Programmable Brown-out
- I/O and Packages
 - 32 Programmable I/O Lines
 - 40-pin PDIP, 44-lead TQFP, and 44-pad MLF
- Working Voltages

V.CONCLUSION

Digital Fuel Meter recycled for deterrence from fuel theft & also it displays the obtainable fuel in tank in numerically. This meter is extra advantages over analog meter by AVR microcontroller and GSM owner of bike is alert from fuel hefting using buzzer or SMS to the owner of bike. We rise the standard of dimension system using Digital Fuel Meter since of Digital Fuel Meter dishonest with customer by fuel filling station can be avoided and performance of system also better with the help of Digital Fuel Meter.

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