Wsn Based Fuel Level Detection and Dispensary Monitoring System for Moving Vehicles

[1]Deo Ashwini, [2]Songire Swapni, [3]Khare Vishal , [4]Darade Sonal

Research Scholars, Department of computer Engineering.
Mathoshri college of Engineering and Research centre, Eklahare, Nashik, India.

Abstract— **now a day's vehicle fuel fraud by fuel thief take place frequently at remote places which causes huge loss of fuel. Our project gives the solution to this problem. The purpose of our project is to detect fuel level from fuel tanks can remotely be controlled and monitored in order to provide a cost - effective solution to a unique challenge of fuel shortage. In this system the Sensor sense the fuel level if that level exceeds. GSM modem works as sim card which provide internet connectivity and can be used for sending and receiving message. The normal condition will be sent as a Message through using WEB API then transmits the information to PC which is also displayed in monitor at remote area through web services.**

We are going to use magnetic reed relay, permanent magnet transistor sensors. The reed switch is an electrical switch operated by an applied magnetic field. Reed switches are widely used for electrical circuit control, particularly in the communications field.

*Index Terms—***Remote monitoring, Sensor, GSM net-connecter, Web service.**
_____

I. Introduction

Now day's vehicle fuel fraud by fuel thief take place frequently at remote places which causes huge loss of fuel. Our project gives the solution to this problem. The purpose of our project is to detect fuel level from fuel tanks can remotely be controlled and monitored in order to provide a cost - effective solution to a unique challenge of fuel shortage. In this system the Sensor sense the fuel level if that level exceeds. GSM modem works as sim card which provide internet connectivity and can be used for sending and receiving message. The normal condition will be sent as a Message through using WEB API then transmits the information to PC which is also displayed in monitor at remote area through web services.

We are going to use magnetic reed relay, permanent magnet transistor sensors. The reed switch is an electrical switch operated by an applied magnetic field. Reed switches are widely used for electrical circuit control, particularly in the communications field.

II. Litrature Survey

A literature review is a critical and an evaluative summary of the themes, issues and arguments of a specific clearly defined research topic obtained from the published (and unpublished) literature.

Fuel level Monitoring task has been attempted through many different approaches like 2 fuel level detection and fuel fraud detection. [3] Bingchuan Yuan and John Herbert in 'Web-based Real-time Remote Monitoring for pervasive Healthcare' The paper discusses the application in the context of the overall CARA healthcare architecture, and presents results of some experiments using the application. This system can continuously measure physiological signals and either process the data locally at a basestation or stream the data to a remote location in real-time. [4] Soyoung Hwang and Donghui Yu in 'Remote Monitoring and Controlling System Based on ZigBee Networks' propose the design and implementation of a remote monitoring and controlling system using ZigBee networks. This system targets a home network. Web services and a smartphone are used for the client system to monitor and control the home. This system can be applied in many areas such as elderly protecting systems, cultural heritage or forest fire monitoring systems, managing systems for agricultural cultivation and so on. [6] G. V. Satyanarayana and SD.Mazaruddin in 'Wireless Sensor Based Remote Monitoring System for Agriculture Using ZigBee and GPS' in this paper it is proposed to design, develop and implement a wireless sensor network connected to a central node using ZigBee, which in turn is connected to a Central Monitoring Station (CMS) through General Packet Radio Service (GPRS) or Global System for Mobile (GSM) technologies. The system also obtains Global Positionting System (GPS) parameters related to the field and sends them to a central monitoring station. Through GPRS technologies and Web Services technology, we can realize the function of the data networking, remote monitoring, it shows that the system can meet the requirements of the temperature and humidity of soil environmental monitoring and unified management. [8] Madhuri Unde and Bharat Borkar in ''Remote Vehicle Tracking & Driver Health Monitoring System Using GSM Modem & Google Maps' A website has been developed to aid the user to track and view the vehicles' location and can be access anytime and anywhere as long as Internet connection is available.

III. Existing System

While studying existing system, we come to know that there are various systems. The existing system provide only alarming and buzzer system in car which draws attention only of the nearby peoples. The existing system is useful only if vehicle owner or driver near to vehicle. The current systems are available in expensive cars that are very high; our project extends it at lower cost affordable by ordinary people.

IV. Proposed System

The reed switch is an electrical switch operated by an applied magnetic field. Reed switches are widely used for electrical circuit control, particularly in the communications field. The attributes of the Web API is time and location. And the operation of the class is sending the message. Web API crop the exact time and location at latitude and longitude and send message to the GSM Modem.(Global System for Mobile Communications, originally Groupe Special Mobile), is a standard developed by the European Telecommunications Standards Institute (ETSI) to describe protocols for second generation (2G) digital cellular networks used by mobile phones. A wireless sensor network (WSN) of spatially distributed autonomous sensors to monitor physical or environmental conditions, such as temperature, sound, pressure, etc. and to cooperatively pass their data through the network to a main location. The more modern networks are bi-directional, also enabling control of sensor activity.

A.   System Architecture

In the design phase the architecture is established. This phase starts with the requirement document delivered by the requirement phase and maps the requirements into architecture. The architecture defines the components, their interfaces and behaviors. The deliverable design document is the architecture. The design document describes a plan to implement the requirements. This phase represents the "how" phase.
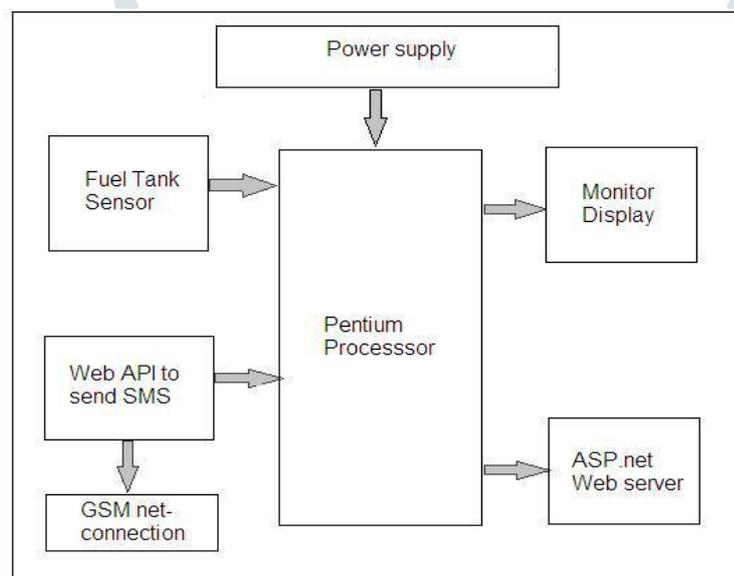

Fig.1. System Block Diagram

Block diagram as shown in figure.1 basically describes the working of our system.
It consists of following blocks

1. Fuel Tank Sensor

2. Web API

3. GSM

4. Pentium

B. Modules Of the System

1) Global system for mobile communication- The GSM as mentioned in [7] reference is elaborated in figure 4.2 is developed as a replacement for first generation analog cellular networks, and originally described a digital, circuit-switched network optimized for full duplex voice telephony .This was expanded over time to include data communication, first by circuit-switched transport, then packet data transport via GPRS and EDGE.

GSM is a trademark owned by the GSM association .It may also refer to the initially most common voice codec used; full rate.GSM is cellular network which means that cell phones connect to it by searching for cells in the immediate vicinity .There are five different cell sizes in GSM.

Fig.2. GSM Modem

2) Magnetic Reed Relay Sensor- A reed relay is a type of relay that uses an electromagnet to control one or more reed switches. The contacts are of magnetic material and the electromagnet acts directly on them without requiring an armature to move them. Sealed in a long, narrow glass tube, the contacts are protected from corrosion, and are usually plated with silver, which has very low resistivity but is prone to corrosion when exposed, rather than corrosion-resistant but more resistive gold as used in the exposed contacts of high quality relays. The glass envelope may contain multiple reed switches or multiple reed switches can be inserted into a single bobbin and actuate simultaneously.
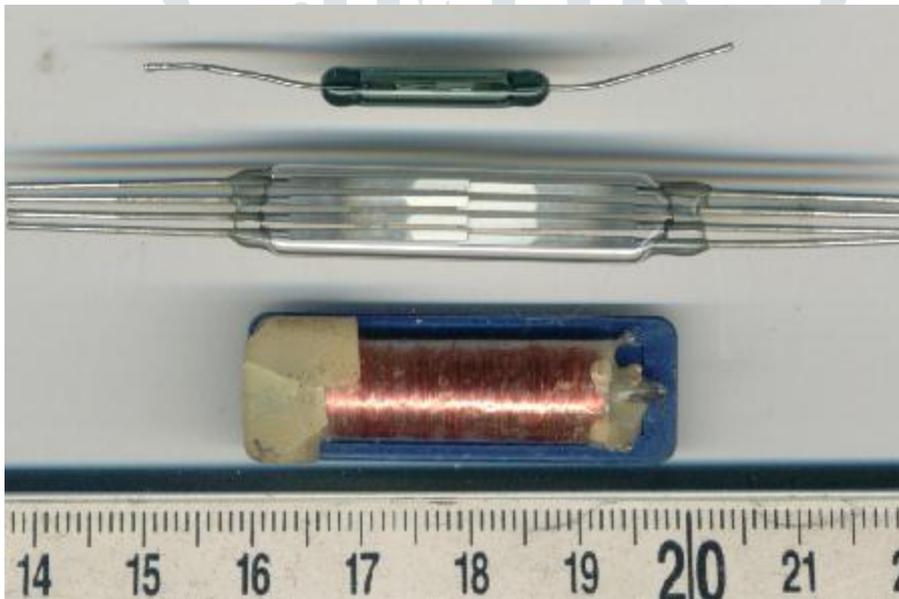

Fig.3. Magnetic Reed Relay Sensor

5. RESULT SET

The result sets of this system describe about the results which are derived after the project is tested. This include sample screen images, any GUI standards or product family style guides that are to be followed, screen layout constraints, standard buttons and functions (e.g., help) that will appear on every screen, keyboard shortcuts, error message display standards, and so on.
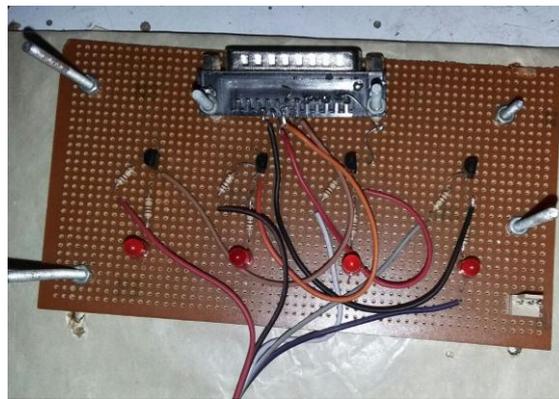
Figure 5.1 :-Assemble 1

Fig.5.1 is the hardware designing part of the system. It includes Diodes, LPT pin, LED's, Transistors, Cables for connection between software and hardware part of the system.

Figure 5.2 :-Assemble 2

Fig.5.2 is the hardware designing part of the system. It includes Magnetic Reed Relay Sensors, cables for connection between Assemble 1 and Assemble 2 of the system.

5.1 Screen Shots
This form is specically use for massage passing. This form includes two timers. One for start detecting fuel level of vehicle and another for start and stop message sending process.

This is login page of On-line Fuel Monitoring and Messaging Sys-tem. It includes the user id and password for login application to more security.
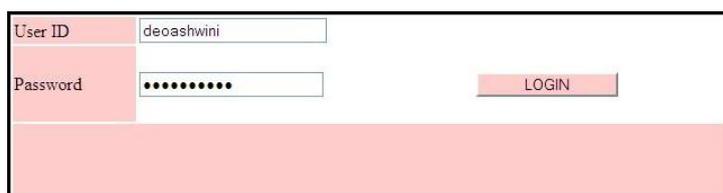

Figure 5.3: Login Form

An authorized person can login with their valid user-name and password and click to login button. After successful login user will see graphical representation shown figures 5.4(a) and 5.4(b). These forms are main window forms.
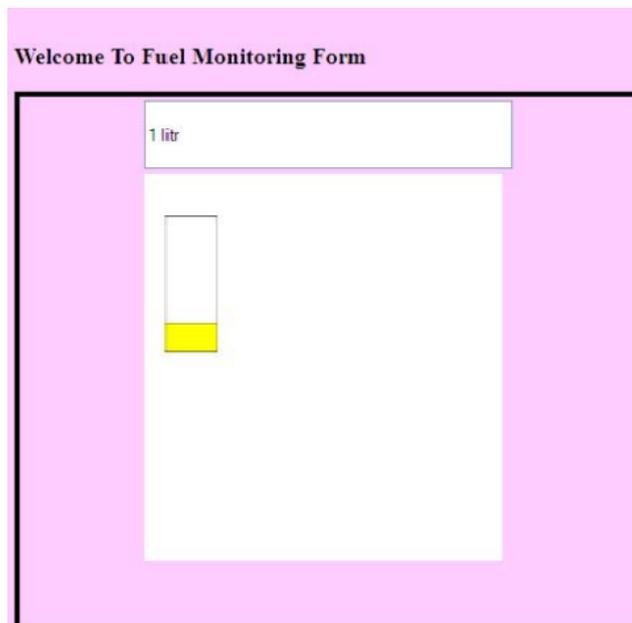
Figure 5.4 :Main Window Form

This form store Database regarding details of Vehicle ID., Fuel Status, Date and Time. Whenever user login, details of vehicle including vehicle id, fuel status with their events will be stored into SQL Database.

Figure 5.5 :Main Window Form

	vehicleid	fuelstat	eventoccured
	mh9697	2 litr	01/01/2006 12:...
	mh9697	2 litr	01/01/2006 12:...
	mh9697	2 litr	01/01/2006 12:...
	mh9697	2 litr	01/01/2006 12:...
	mh9697	3 litr	01/01/2006 12:...
	mh9697	3 litr	01/01/2006 12:...
	mh9697	4 litr	01/01/2006 12:...
	mh9697	2 litr	01/01/2006 12:...
	mh9697	3 litr	01/01/2006 12:...
	mh9697	1 litr	01/01/2006 12:...
	mh9697	2 litr	01/01/2006 12:...
	mh9697	2 litr	01/01/2006 12:...
	mh9697	2 litr	01/01/2006 12:...
	mh9697	1 litr	01/01/2006 12:...
	mh9697	2 litr	01/01/2006 12:...
	mh9697	2 litr	01/01/2006 12:...
	mh9697	1 litr	01/01/2006 12:...
	mh9697	2 litr	01/01/2006 12:...
	mh9697	3 litr	01/01/2006 12:...
	mh9697	4 litr	01/01/2006 12:...
	mh9697	3 litr	01/01/2006 12:47:4
	mh9697	2 litr	01/01/2006 12:...
	mh9697	1 litr	01/01/2006 12:...
	mh9697	1 litr	01/01/2006 12:...
*	NULL	NULL	NULL

Figure 5.6: Database

5. Conclusion

In the world of corruption and fraud of fuel, we have created this system to prevent the fuel thieves and for safer purpose so the owner of the vehicle can monitor the fuel tank analysis without being present in the vehicle.

References

1] A. M. Cheriyan, et al., "Pervasive embedded real time monitoring of EEG & SpO2," in Pervasive Computing Technologies for Healthcare, 2009. PervasiveHealth 2009. 3rd International Conference on, 2009, pp. 1-4.

2] LIU Yumei, ZHANG Changli , ZHU Ping, "The temperature humidity monitoring system of soil based on wireless sensor networks " , 2011 IEEE.

3] Bingchuan Yuan and John Herbert in 'Web-based Real-time Remote Monitoring for pervasive Healthcare,2011.

4] Soyoung Hwang and Donghui Yu in 'Remote Monitoring and Controlling System Based on ZigBee Networks',2012.

5] Abid khan, Ravi Mishra, "GPS – GSM Based Tracking System", International Journal of Engineering Trends and Technology Volume3 Issue2- 2012.

6] G. V. Satyanarayana and SD.Mazaruddin in 'Wireless Sensor Based Remote Monitoring System for Agriculture Using ZigBee and GPS',2013.

7] Mohammad Ridhwan,Ahemad Faud,Micheal drieberg, "Remote vehicle tracking system using GSM modem and Google maps",IEEE conference on Sustainable Utilization and Development in Engineering and Technology- 2013.

8] Madhuri Unde et al, / (IJCSIT) International Journal of Computer Science and Information Technologies, Vol. 5 (3) , 2014, 2828-2832.