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**ABSTRACT**

There is a major boom in oil and gas industry around the world thanks to the seemingly insatiable demand for fossil fuels in both developed and developing countries. The product together with petrol, petrochemicals, and lubricants all of that area unit used daily need economical and adequate provide to satisfy ever increasing demand. These products are valuable and rare creations of the nature. In Current days petroleum industries were distributing petrol using tankers to respective petrol pumps; which were normally manual distribution and was totally depends on man's loyalty who was doing this job. The proper use and distribution is important task to survive product. Our aim is to develop the safety system for the gasoline distribution tankers of fossil oil Company. The aim of the system is to open or close the tank-valve of the tanker controlling from control cabin. We will use GSM and RFID technology for this purpose.

**KEYWORDS** - RFID, GSM, SMS

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**INTRODUCTION**

One of the most essential things in today's world is fuel. There are number of petrol pump around us. But as far as safety of Fuel distribution is concerned we are still behind the world. Leakage of petrol leads to a blast and stealing of petrol may lead to debacle. There our system may be the approach towards security of petrol distribution system. The main purpose of this project is to provide authentication to petrol distribution system. For this purpose we will use RFID and GSM technology.

Our system consists of two main parts namely the control unit and tanker unit. The two systems will remote from one another can simply communicate with one another through GSM. The tanker unit which will be placed on tanker consists of RFID reader which will read authentication code of each petrol pump. The authentication code will send to control unit via GSM. The coding at control unit will help to control (to check authorized petrol pump, to send valve opening signal) and to keep record of all these things (authentication of company i.e. petrol pump total fuel delivered). In Short we satisfies all the needs related secure distribution of petrol.

**RELATED WORK**

In [1] authors used RFID and GSM technologies to give total security for distribution of petroleum products. It also use VB program will help to authorized company to control distribution fuel whole country. In this system consist of two units; tanker and control unit. Tanker unit placed at tanker which monitors continuously the fuel level in the tank. The initial original fuel level and current fuel level displayed on LCD at front for driver's convenience. The RFID assembly read the authentication code of the petrol pump. The amount of fuel poured at particular petrol pump and petrol pump ID sent to central office through GSM techniques. The visual basic coding used to check authorized petrol pump and to send valve opening signal and to keep record of all these things like total fuel delivered, current fuel level, coasting of delivered petrol..

In [2] authors offer system in which fuel stations works automatically. The advantage of this system is that it requires less time to use and installed anywhere. The customer was self-going to avail the services the payment had done by electronic clearing system. It uses microcontroller and GSM technology to give a total security and atomization in fuel distribution fuel. The system used mobile phone system and graphics user interface (GUI) and interfaced with high-speed fuel dispenser which was convenient for consumer to use. In this system the password provided to the each user through his mobile phone by the petrol pump. Customer has to enter his password on the LCD provided by the fuel station for authentication. If customer authentication verified by petrol pump database system then and only then fuel distribution the fuel was possible.

In [3] author monitor the multiple remote petroleum oilfield banks status by using wireless communication and embedded technology. The project designed for to provide the wireless security for remote multiple petroleum banks by using security sensors. It uses multiple sensors to monitor the petroleum bank status like wireless oil well shutdown alarm, oil well power failure alarm, oil well running, oil theft. This project split into two sections namely wireless transmitter and wireless central receiver to provide the automation in wireless security system. Wireless remote transmitter section placed on each remote petrol bank and the receiver central unit placed on central monitoring area.

## PROPOSED SYSTEM

### A. Aim Of Project s:

In today's world, everyone is becoming very careful about security, with no exception for petroleum industries. Various petroleum industries are becoming very careful about manufacturing and distribution of their products. Advance technology addresses these requirements and providing the foundation to allow cooperative interaction to be developed. Thus the Embedded security system using GSM and RFID techniques is example of advance technology which will be providing the base for security of petrol distribution and data keeping using electronic control. The aim of the system is secure distribution of petroleum product and maintaining its log.

### B. Purpose:

The purpose of this designing is to determine the scope of the project in terms of the most important functions, performance Issues and technical constraints. The set up can offer associate estimate of the scale of the product, the trouble needed and also the period. This plan will take into account the chance encountered throughout the project and therefore the ways for handling them. The plan additionally will discuss the elaborated schedule of varied subtasks among the project and also the resources required to accomplish them.

### C. Description of the Proposed System:

The project Embedded Based Security System Using GSM and RFID is basically security system for the petrol distribution tankers of Petroleum Company. The customers demanding the fuel from the petroleum industry will first SMS the industry to convey the requirement. Company will send the fuel via tanker to the petrol pump.

Now, our system comes into existence in two parts, one is placed inside the tanker and other is placed at the petrol distributing industry The unit which is placed at tanker consists of an electronic valve. This valve is provided to keep the tanker opening block until it get the opening order from the microcontroller unit. The authentication code of the petrol pump read by rfid assembly by swapping the RFID tag over it. The code sends it to the control unit to update the record as well as to authenticate the customer who is demanding the petrol. The RFID system is connected to the microcontroller, flow sensor and relay /electronic valve assembly; where the RFID reader will identify the authenticated user ID and send the information about user ID number to the Control cabin section through SMS by using GSM as communication media.

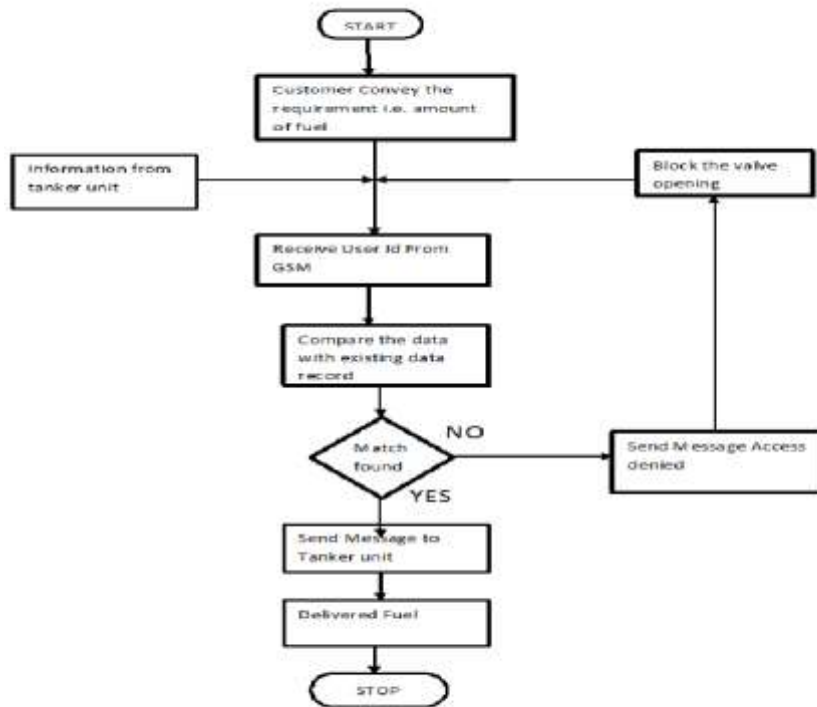
On the other end the control cabin consists of another GSM unit which receives the information from tanker unit and interface serially to microcontroller. The microcontroller also interfaced serially to personal computer. The microcontroller is used to identify the match between present identity and received code. If the received data gets perfect match with the present data then the control units will response the tanker unit via GSM message in the form “\*01YXXX”(X-amount of fuel and Y- ID).The interrupt to the microcontroller to activate/ deactivate the control valve relay is provided by the SMS by the control cabin's GSM unit using “\* 01YXXX” topologies, where the “XXX” is amount of fuel. The microcontroller first separate the “\*01” and “Y “and “XXX”, and using the value “XXX” it will open the valve. Here „\*01“ creates interrupt inside the microcontroller. On receiving the interrupt from the Control cabin unit, the valve takes action accordingly. The microcontroller continuously sense the fuel level using Flow sensor and keeps the valve open until it reaches the quantity to be delivered by incrementing the counter. Here the amount fuel delivered to the customer gets displayed on the LCD screen. Also, the control unit updates the database by recording amount of fuel delivered. Thus our system provides total and central control on petrol distribution using simple RFID and GSM technique.

## ALGORITHM

1. Start
2. Firstly customer will convey the quantity of fuel required through SMS.
3. Keep the records of the customer i.e. amount of fuel
4. Take information from tanker unit.
5. Receive user ID from GSM

6. Compare the received id with present id.
7. If match, send the message to the tanker unit using “YXXX” format and update the data. Where Y- Customer id, XXX- amount of fuel.
8. If match not found, send message “Access Denied!” to tanker unit Block the valve opening.
9. Again follow step 4 to 8.
10. Stop

## FLOW CHART



## PRACTICAL RESULTS

Party A has requested for the 500 ml of petrol by sms to the control unit. Then party A swipes the RFID tag against reader. This tag is used for authentication of party A. The RFID number is sent to control unit via GSM. The GSM module here is used for communication between Tanker and Control unit. Now Control unit has received the SMS which includes details like RFID number of Party A. After some delay, the monitor shows the auto update of record w.r.t access granted or denied as shown in figure 3 and it sends the message back to the Party A in form “YXXX” e.g. “a500”. As soon as the message received at the Party A, the relay gets actuated, which in turn activates the flow sensor and now the display starts to show the fuel level. As the flow sensor reaches the threshold position by pouring the particular fuel, relay is deactivated, which stops the flow sensor.

The graphical user interface of data acquisition system prepared which consist of following parameters.

- Company name
- Access granted or denied
- Amount of fuel delivered.

Sr.No	Amount of Fuel ordered(ml)	Actual Fuel delivered (ml)	Company Name
1	100	100	A
2	200	190	B
3	300	280	B
4	400	380	B
5	500	500	B
6	600	580	A
7	700	680	A
8	800	800	A
9	900	870	A
10	0	0	c

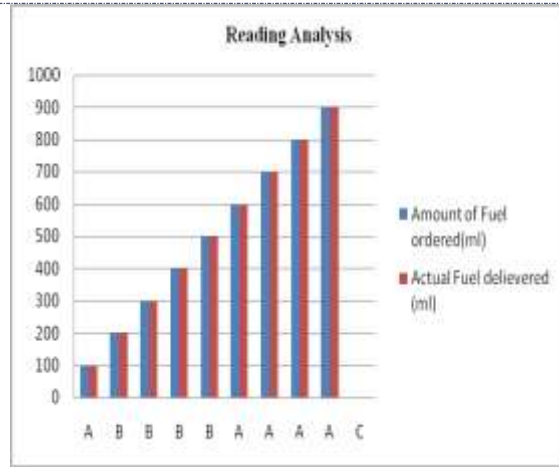


Fig.1.Experimental analysis

Fig. 2. Graphical analysis

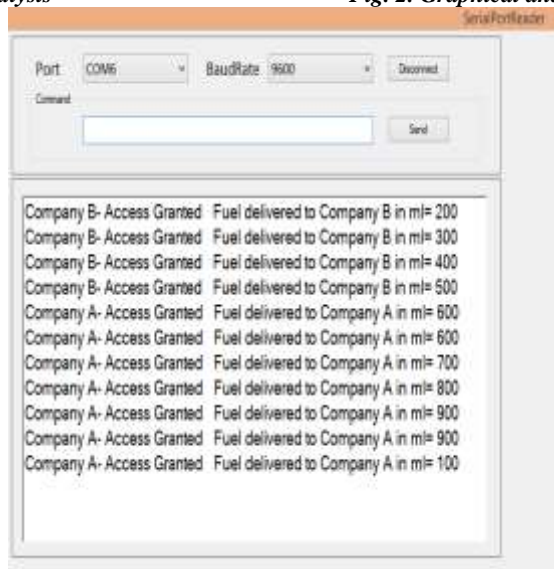


Fig. 3. Authorised Company Get Access Granted

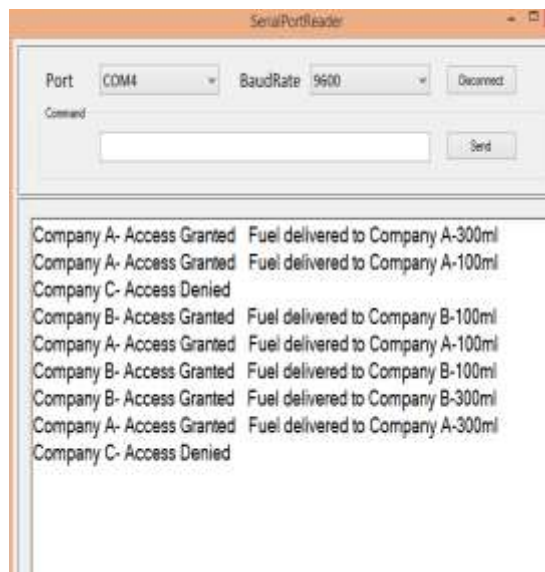


Fig 4. Unauthorized Company Get Access denied

## CONCLUSION AND FUTURE WORK

The practical results showed that the proposed system provides access to petrol distribution tanker to only authorized company and unauthorized company get access denied. It also changes the face of today's manual system of distribution and record keeping. All these activities controlled by central unit provides the correct approach toward security and economical need of the industries since industry itself can control distribution as well as keep the record of the same fuel from thousands of miles seated in office. In future it is also possible to implement the same system for milk processing industries for distributing the milk. In day to day life we see that water distribution in summer is one of the major issues in front of India. So it is possible to keep control on water distribution in particular area

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