

# IOT in Fuel Station and Service Station Location

S. Ravichandran\*

## ABSTRACT

This paper relates to a smart method for identifying the quantity of fuel present in the tank and the nearest fuel station. The fuel station location system automatically notifies the user to the closest fuel bunk when the vehicle is running on low fuel. This system is having a digital display which comprises of three dialog boxes such as a map, vehicle statistics and service station. The system has thresholds to notify the user regarding the quantity of fuel and the nearest fuel bunk. The user can click on the service station option to get the information on the nearest service station.

**Keywords:** Fuel Station, Station Location, Internet of Things, Digital Display, Map, Vehicle Statistics, Journey

## 1. INTRODUCTION

The present invention relates to the field of Internet of things (IOT) in the identification of quantity of fuel present in the tank and nearest fuel station.

While travelling long journeys or travelling in different places the driver may tend to forget to check the fuel tank before the start of the journey and also the driver may not know the fuel station present in that locality. Other issues while travelling may also arise such as vehicle breakdown, puncture, etc. Such situations make the driver/user panic during their journey.

To overcome the above mentioned problems and enable a smooth and pleasing journey, our research team has developed smart technologies that enable the user to identify a nearest petrol bunk and an automatic indication on the fuel quantity in the tank.

The system indicates the user the quantity of petrol available in the tank and also the nearest fuel bunk and service station through digital displays embedded in the vehicle and maps for locating the service station.

The invention has the following advantages:

1. Two threshold levels on the level indicator
2. A colouring system to indicate the severity of the situation
3. An inbuilt display device to display the information
4. A service station option on the digital display to give information about the nearest service station

## 2. DESCRIPTION

This paper discusses on a smart system that enables the identification of fuel in the tank and the nearest fuel station.

---

\* Vice Chancellor, St. Peter's Institute of Higher Education and Research, Avadi, Chennai, India, Email: drravis@gmail.com

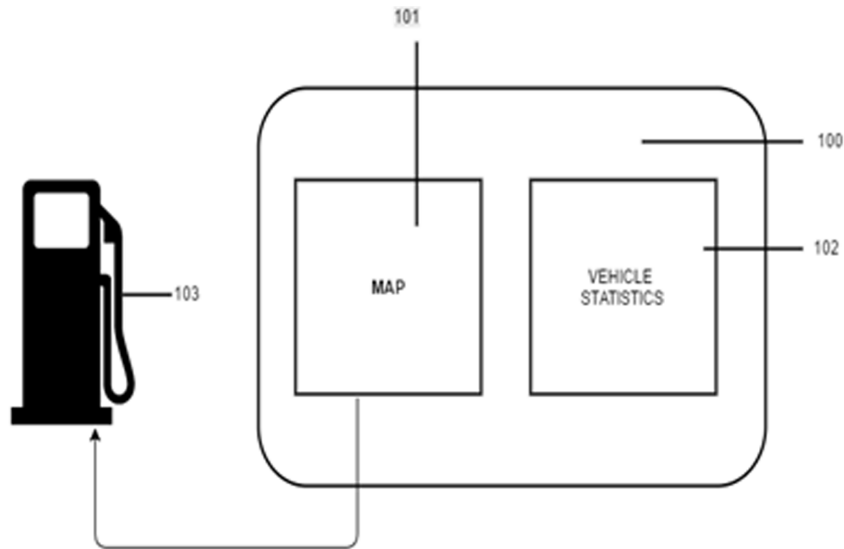


Figure 1: Digital Display Present on the Vehicle

The invention includes a system to inform the user regarding the quantity of fuel and availability of nearest fuel station in case of low fuel indication.

FIG. 1 is a diagram of the digital display present on the vehicle indicating the parts of it. The digital display 100 is having dialog boxes indicating for map 101 and vehicle statistics 102.

The fuel tank 103 of the vehicle has a level indicator that indicates the quantity of fuel present. There is incorporated a system to indicate two different threshold levels which will serve as warning zones for low fuel levels in the vehicle.

The display system of the vehicle will be used to display the information regarding the low fuel level in the vehicle. Two different colours are used to indicate the severity of the situation.

The two thresholds are fixed according to the capacity of the fuel tank. The first threshold is present at the level 20% of capacity of the tank and the second threshold is present at level 10% of fuel tank. When it reduces to the first threshold then the screen is flashed with yellow colour with an audio sound indicating low fuel quantity.

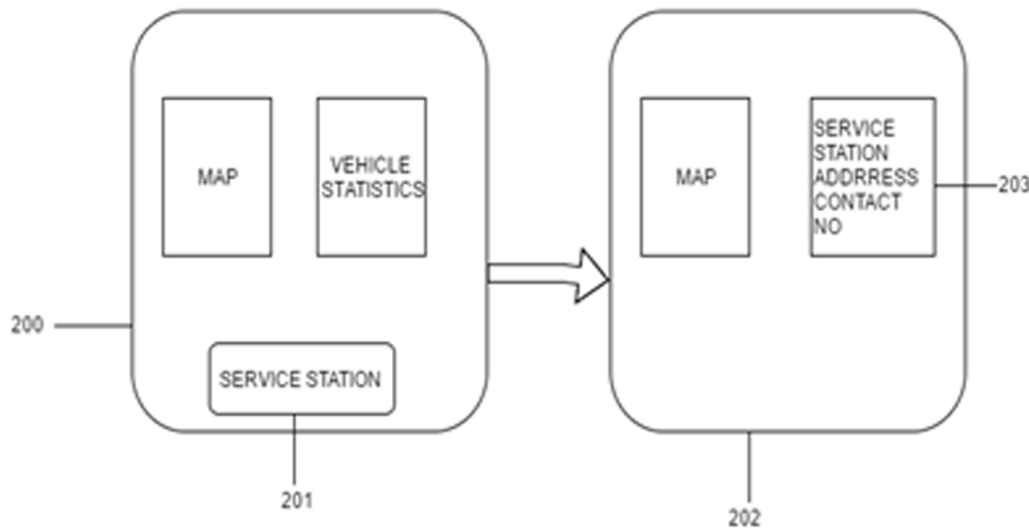
At this time the map 101 will be activated on the display screen 100 and the directions to the nearest fuel bunk 103 is available. If the user doesn't pay attention to the first warning, they are intimated at the second threshold. At this point the screen is flashed red in colour indicating critically low level accompanied by an audio signal.

Whenever the fuel reaches to the second threshold the vehicle gets stopped to indicate the user about the critical low level of fuel and the system again reroutes to nearest fuel station.

The method of display is triggered automatically as soon as the fuel quantity reaches the threshold level. If the user is listening to some audio or navigating through maps, then the fuel station indication system flashes on the screen indicating priority.

In another embodiment there is a service station location system present in the vehicle which will be helpful during the breakdown of vehicle in the mid journey.

FIG. 2 is a diagram of digital display showing the service station information. Whenever the user required contacting the nearest service station, he has to click on service station option 201 on the digital display 100. Then another screen 202 will be open as shown in the fig 2. It contains the map 204 indicating the no. of service station and the address of service station with contact number 203. Further the user can select the



**Figure 2: Digital Display Showing the Service Station Information**

navigation to the address from the map 204 or in case of any hard situation they can call the service station and ask for the help from the contact number 203 present in the digital display 100.

### 3. IMPLEMENTATION

Objects of this present invention describes a fuel station and service station identification system that automatically notifies the user to the closest fuel bunk or service station.

One of the primary features of the present invention explains about the service station which can help in locating the nearest service station in case of vehicle breakdown.

The display is triggered automatically as soon as the fuel quantity reaches the threshold level, then the fuel station indication system provides information on the nearest fuel station on the screen.

This present disclosure has the provision for providing the navigation to the nearest fuel station whenever the fuel level in the tank is low. It also has the provision to contact the service station in case the user gets struck in middle of the journey due to vehicle breakdown.

### 4. APPLICATION

The invention as described in the drawing finds applications in:

1. Two-Wheelers
2. Four Wheelers

### 5. CONCLUSION

Major advantages of the present disclosure are that it provides a fool proof system to indicate the user regarding the quantity of fuel present in the fuel tank including the information about the nearby fuel station and service station.

### REFERENCES

- [1] Shanzhi Chen, et al, "A Vision of IoT: Applications, Challenges, and Opportunities With China Perspective", ISSN 2327-4662, Page(s) 349 - 359, 09 July 2014
- [2] Ying Chen, Fangyan Rao, Xiulan Yu, Dong Liu, "CAMEL: A Moving Object Database Approach for Intelligent Location Aware Services", Volume 2574 of the series Lecture Notes in Computer Science Page(s), 331-334, 16 December 2002