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Vehicle Health Monitoring System

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ABSTRACT: This paper is based on basic vehicle condition monitoring system. With the increasing population there is a increase in usage of automobile vehicles too. The basic convenient measure as well as safety measures are also important. We propose this system based on Arduino microcontroller which will detect the current condition of the parameters considered are, the ultrasonic sensor for accident avoidance which will detect before collision occurs, using ultrasonic sensor we will able to identify current amount of petrol present in the tank which will reduce frauds at petrol pumps, by using LDR sensor in headlights will automatically reduce the use of battery consumption and will be used when required. The current condition of these parameters will be informed to owner of the vehicle through display on android app .moreover, the system is designed to monitor the basic requirement of any vehicle.

KEYWORDS: Vehicle health monitoring, IOT, Fuel Indicator, Accident avoidance, automatic headlights.

I. INTRODUCTION

The basic convenient measure as well as safety measure are also important. So, we are designing the system based on Arduino microcontroller which will detect the current condition and will directly notify to the owner. Moreover, the system is design to monitor on the basic requirement of any vehicle.

A. Motivation

- To reduce power consumption and improve battery life.
- Accident avoidance using ultrasonic sensor .
- Fuel detection using ultrasonic sensor

B. Solution

Currently the fuel indicator system for the most of the vehicles area they do not show the exact amount of fuel present in the tank and air in tire. So this problem is taken into consideration in this work for developing the Vehicle Health Monitoring. Accident detection, Power consumption due to continuous light On, and ultrasonic pressure for accident avoidance are some important parameters in Health Monitoring of Vehicle which will cover in this project.

II. RELATED WORK

This system utilizes the Flow meter to measure the rate of consumption of fuel, so as helps to study the running condition of vehicle. The above studied paper monitors only the fuel consumption system. It does not tell us the amount of petrol that is being inlet into the petrol tank. Also many papers are available, but none of them suggest a technique to calculate the accurate flow of petrol into the tank [1]. The paper proposes a digital level transducer based on an optical fibre from which the cladding was removed in n zones at fixed distances from one another. A theoretical analysis of the propagation in this type of modified fibre was carried out, highlighting the good potentiality of the proposed sensor[2]. In many circumstances, the conventional ultrasonic liquid-level detection presents the unreliable estimations due to the dynamically changed liquid level. In addition, there are circumstances where the level change involves not only the fluctuation but also the rise or fall of liquid level. To improve the measuring accuracy of liquid level using the ultrasonic method in dynamically changed level case, an attractive ultrasonic method, named the liquid-level detection

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based on the multiple-input multiple-output ultrasonic transducer array, is proposed in this paper. [3]. Petrol has become one of the most basic fuel requirements of every individual to run their day-to-day life. In a developing country like India, the total economy of the country depends on the petroleum products. At most of this petrol produced is being used for the transportation purpose, that too for the bikes and cars. Also the economy of the individual depends on their petrol consumption.[4].

III. PROPOSED SYSTEM

1) SYSTEM OPERATIONS

Monitoring of fuel going inside the tank during fuel filling process is a difficult task. With the help of this system fuel going inside the tank when the fuel is being filled can be monitored. This type of system can be used to measure the amount of petrol, diesel

or some other type of liquid. The purpose of this device is to prevent fraud in petrol pumps where in some cases the quantity of fuel displayed in the filling machine is not the actual quantity of fuel going inside the tank. In this system vehicle head light will turned on/off automatically according to bad light conditions. By using ultrasonic sensor we can detect and avoid collision occurred with vehicle and alert is generated and simultaneously alert notification will send to android app.

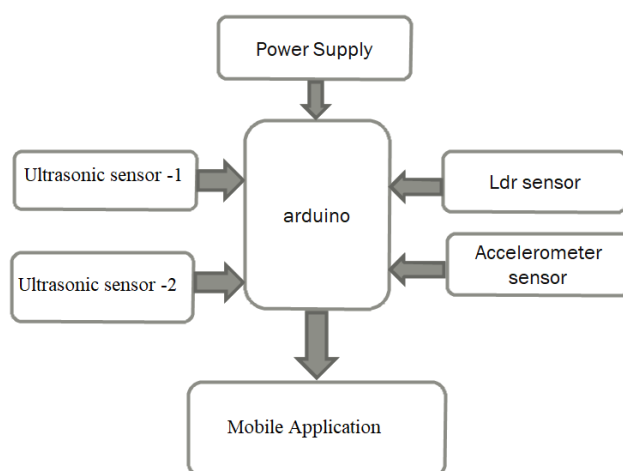


Fig.1: System Architecture

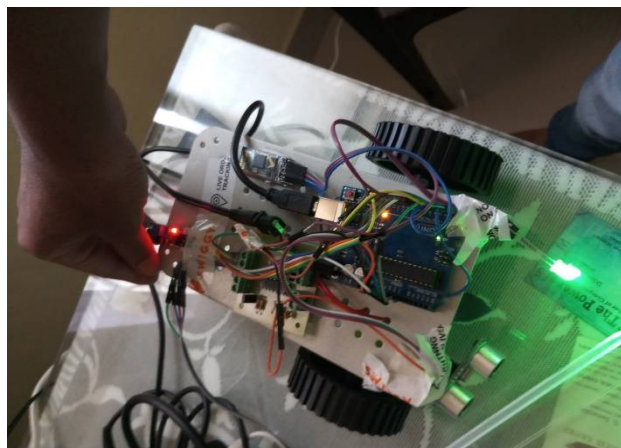
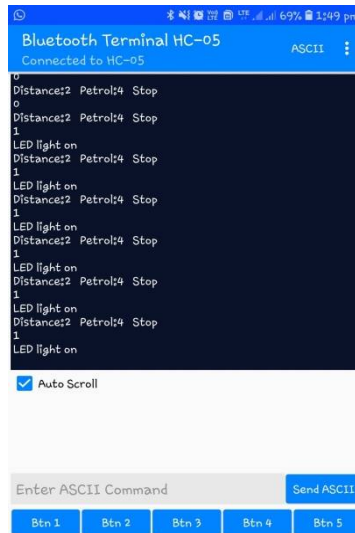
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IV. RESULTS





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V. CONCLUSION

This system deals with the basic requirements of the vehicle eventually it will maintain the vehicles performance as well as will increase the overall life of the vehicle. It also aims at providing an excellent notification system and assists in monitoring appropriate fuel level, automatic headlights control and avoiding accidents. Most importantly assures to provide comfortable and safe driving. The displayed results explains that the system is more accurate and efficient

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