

Real Time Vehicles Parking System Enabling Wireless Sensors In Cars

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Abstract

The main aim of the paper is predicting the number of available parking spaces in the parking slot. The challenge of traffic and parking management has increasingly posed the need for smart solutions. Traffic and Parking problems are common in most major cities. The limited availability of parking results in traffic congestion, motor vehicle pollution, as well as driver frustration. Many cities facing with several parking problems which cannot be served by the existing systems.

An application is necessary to guide drivers to locate vacant spaces during peak hours. This paper proposes efficient parking system using **parking slot sensors enabling in cars**. IR Sensors checks the parking slots and sends the data to the system and it will capture the data by an android application and reflects to the user mobile application. Data captured by the IR sensors goes to the server and after calculation of data it will go to the user who is near to that place. All the data stores in cloud server and user can reserve the parking based on time limit. If there is any delay in parking then other user can see that free parking again. This system gives information on the total number of free slots in the car parking area, and also helps the driver in guiding to the exact location of the free parking slots area

Keywords: Parking navigation, Android Application, IR sensor network, RFID card, Parking Architecture

1. Introduction

Traffic jams paralyzing the day to day activities is a common factor now, especially during the peak hours[3].It is a critical problem which happens on roads which make traffic busy because roads full of cars due to lack of parking systems.

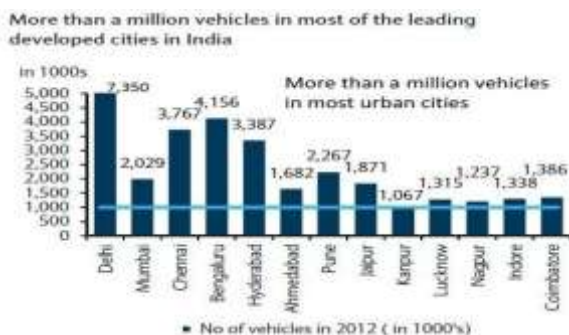


Fig 1:- Car Registrations in different cities

Bengaluru stands in the second place for more number of Car registrations in India every year

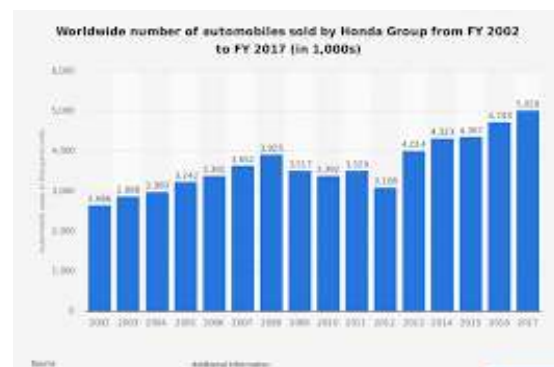


Fig. 2:- Report Analysis of no. of cars sold by Honda Company till 2017

As Increasing number of vehicles every year and especially in the peak season creates havoc in the life of people. The current parking system is costly so, desperately needs a fully automated parking system.

IR Sensors checks the parking slots and sends the data to intranet and it will capture the data by an android application and reflects to the user mobile application. Data captured by the IR sensors goes to the server and after calculation of data it will go to the user who is near to that place. All the data stores in cloud server and user can reserve the parking based on time limit. This system gives information on the total number of free slots in the car parking area, and also helps the driver in guiding to the exact location of the free parking slots area.

This system uses different hardware components and software applications to implement parking system.

II. CURRENT SYSTEM AND ITS DRAWBACKS

- The key issue of parking problem is more demand for parking and less availability of parking space.
- The available information is only the total number of free slots available but not the exact location availability so it becomes difficult for driver in searching the free slots and sometimes before reaching that location, somebody else can occupy [4].

III. PROPOSED SYSTEM ARCHITECTURE

- Fully Automated System
- IR sensors detects the vehicles
- RFID card is attached to each vehicle near the number plate.[5]
- The user's mobile phone will be used to display the available slot for the vehicle
- With the help of Google Map Server we can locate the current location.
- Cloud server periodically updates the free parking slot information.
- Service provider will maintain and is responsible for allocation of the parking slots.



Fig. 3:- Parking Architecture using IR sensor

IV CONCLUSION

We can observe that this new parking system is an added good feature to the current parking problems like manually searching for free parking slot and paying more parking charges. So, we proposed IR sensor and RFID card which gives an information on the total number of free slots in the parking area, and it also finds the exact location for parking the vehicle.

Hence, we believe that this new parking system, when it's released into the cities, will be one of those best solution in parking activities.

In further this system can try to propose not only free parking space, it can also reduce the traffic searching for parking spaces in a car parking places and therefore it reduces the emission of pollution and noise.

REFERENCES:

- [1] This is an extended version of a paper that was published in One Day National Level Conference on "IDEAS FOR USTAINABLE INDIA" entitled "TRAFFIC FREE ROUTING USING WIRELESS SENSOR NETWORKS"
- [2] Gradient-driven parking navigation using a continuous information potential field based on wireless sensor network by Wei Wei a, Houbing Song b, *, Wei Li c, Peiyi Shen d, Athanasios Vasilakos
- [3] Lack of parking space and traffic culture cause of traffic SNARLS BY meghalaya times posted in editorial
- [4]Metropolis Parking Problems and Management Planning Solutions for Traffic Operation Effectiveness
- [5] Parking Availability in Sensor Enabled Car Parks by Snehal Bankar, Mitali Dhaigude, Sonali Gajendragadakar, Supriya Gavli. *International Journal of Computer Science Trends and Technology (IJCTST) – Volume 4 Issue 1, Jan - Feb 2016.*
- [6] Navwan chandavarkar, "Proposal for Advanced Parking System in Indian Situations" in *International Journal of Advanced Research in Computer Science and Software Engineering, Volume 4, Issue 6, June 2014*
- [7]<https://www.ukessays.com/essays/transportation/traffic-congestion.php> (IPI) 2012 Emerging Trends in Parking Study.
- [8] Special system of new Astana new train station, published on Nov 15, 2015.