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A REVIEW ON SMART VEHICLE PARKING SYSTEM

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ABSTRACT
Day by day there is an incremental growth in number of vehicle is increasing rapidly. So, with the increasing of vehicles on road there are some major problems are also increasing regarding traffic control. And that's why we need to invent something different and a project regarding automation known as "smart parking system". Which will be based on the technology IoT. This IoT based system will provide a good solution regarding the traffic control problems on the road metropolitan cities. The main disadvantage in the existing system is tracing the amount deducted and it varies time to time on different slot. Hence we provide a solution "smart parking system". In this system the custodians can easily find out the vacant parking slots. Here the same gate used for exit (where is the same the entrance gate in this project) count in reverse order for the cars when the car goes out from the park. This project aims at the interfacing RFID concept internet of things (IoT). In urban areas pollution and the consumption of fuel are also some major issues which can be solved by the new proposed system.

KEYWORDS: *Smart Parking System, IoT, RFID*

I. INTRODUCTION

This proposed in internet of things IoT technology contains a network of different-different things like physical object, devices, vehicles, buildings and some other physical items and this will be embedded with electronics, software, ultrasonic sensor & a network connectivity which allows these objects that these objects can transfer the data to each other. In today's era the population is increasing very fast so, as we can see the number of families are increasing too and people are increasing their use of personal vehicle would increase is not big deal that's why the number of personal vehicle using increasing rapidly. And the parking situation is going to be worst day by day of the current requirements in the country. Therefore, the problems regarding traffic and space can be solved by new proposed system. In Asia, roads are narrow which cause these types of problems.
Many solutions have been provided to overcome traffic problems till date. Keeping in view, there are lot of factors that affects traffic, this paper specially focuses on solving parking related issue using IoT and RFID, thus named smart vehicle parking system. This system uses RFID in order to provide high identification accuracy, efficient management of parking slots easy in-and-out access for drivers with least human intervention, low development, operation and maintenance cost.

II. LITERATURE REVIEW

A. Parking system based on image processing

In this system device will capture the number of plates of vehicles individually which will help in the unique identification of vehicles. And for the payment calculations same data will be used.

Advantages
This system will capture the image of parking lots and then it will give the information regarding free parking space and the picture which is captured will be capture in rounded image. Camera will show the occupying condition of car parking. And it will use like sensor to take photos of vehicles. There can many vehicles be detected with the help of a single camera.
Disadvantages
In this system weather conditions can be a affected factor because it will effect on the visibility of vehicles. The camera should be in apposition where it can see all the car park and not be obstructed by any object. No guidance is provided in the parking lot.

B. Automated parking system with Bluetooth access
In the range of bluetooth the vacant parking space will be allotted when the user tries to find out the parking space.
Advantages
User can use the mobile's bluetooth to register and identify the parking space. And the mechanism which will help to find out the location to transport the vehicle is rack and pinion mechanism. When a new vehicle is to be parked bluetooth chip will automatically detect the unique identification number.
Disadvantages
The existing system cannot adopt this. The mechanism which is required to design the whole parking lots mechanically is rack and pinion.

C. Car park management, with networked wireless sensors and active RFID
In this system the cars parked in the parking areas will be monitor with the help of network wireless sensors. For the unique identification of cars, every car must have an RFID tag which would be embedded in it.
Advantages
This system will be very effective in the terms of simplicity and cost management for the user over lot management model. Gate management services: As an example, a gate can be opened automatically using an RFID reader and the vehicles tag at the gate.
Disadvantages
No driver guidance system to guide towards the parking lot.

III. METHODOLOGY

From various academic disciplines and with the incorporation of advanced technologies and researches, SMART PARKING SYSTEM was mainly implemented is EUROPE, UNITED STATE AND JAPAN (Shaheen et al., 2005). And it was assumed that the problem patrons faced to park the car regarding space can be solved by the deployment of this system.
Now in automation of vehicle parking system in malls and buildings the existing system aims to use RFID technology. But to pay and displays the tickets an efficient and an alternative method is proposed i.e., coin operated meter in this new Smart Parking System. This is very simple and cost effective for the implementation. And this is the standalone system and it will help to reduce the fraud and cash handling in traditional way of parking.
This smart parking system helps the user to find the nearest parking area and shows the availability of parking slots in the nearest parking area. And the main focus of this parking system is on reducing the time it takes to find parking lots and it helps to avoid traveling unnecessarily through the filled parking lots in the parking area. Thus it helps in reducing fuel consumption. It also reduces the carbon footprint available in the atmosphere.

IV. DRAWBACK OF EXISTING METHODOLOGY

1. If on the same time more than one user applies for the booking then an issue arises regarding priority.
2. Specific amount is not clearly configured.
3. Only RFID concept cannot establish the minimizing of traffic by pre-booking.
4. Payment gateway is the major drawback.

V. PROPOSED METHODOLOGY

In this RFID technology is interfaced along with IoT. In this system when user wants to find the parking then this system will allot the parking to the nearest of the user.
To find the parking lots in less time and on the other hand avoids the traffic at a particular area is the main focus of this new system. One more purpose is there of this new system is to reduce the number of workers from the garage and on the other hand to reduce the prevalence of owners of cars because whenever a car owner goes to park the car in the car parking there is always a 7-meter counter at the entry of the car. While, the exit will be count in ascending order or according to what is done in the coding of Arduino programming and it will absorb the number of vehicles to be inside the garage.
The feature in this project is added that is when every parking lots become full then the door of the parking will be closed automatically and it will not open until a car went out of the parking and this feature in this project can be added by several devices that help the person to gain time and reduce the congestion caused by protrusion such as the depletion of the GPS. When the driver reaches at the parking the slot every driver owning the vehicle parking card also known as the RFID tag should show it in front of RFID reader. The card which owner have regarding the booking of parking lots would have the information. There would be a card reader at starting of car parking which will detect the RFID card. Whenever a person enters with his car he has to show the RFID card. The card reader at the starting will read the in time. Then it will pass the data to Raspberry pi 3 which will send the data to web server. When the car owner wants to go out from the parking he will again show the card at the exit and then reader will read the out time. The time between in and out will detect the amount of parking.

VI. RESULT

The demand of smart vehicle parking system is increasing very fast. This allow user to involve real time access of the availability of the parking space. The existing system in today's world doesn't contain the facilities of parking reservation and parking slot availability checker. The result of this paper is to make the parking area connected with the world as well as reduces time and can be cost effective for the user. The result of this new proposed system to reduce the thieving the cars from the parking. This paper reduces overall fuel energy of the vehicle which is consumed in the search of the car.

VII. APPLICATIONS

This new proposed helps to reduce traffic congestion. Can be implemented in mall, hospitals and multi store building. It will provide a large scale to park the vehicles. The time which take in the process it can be made short and easy to configure. In this booking will be easier. And the payment method is also manual therefore we don't need to worry about online transaction.

VIII. CONCLUSION

This system will provide the solution to all the problems regarding vehicle parking. This proposed system is simple and economic to deploy. And this will also help to reduce the carbon footprints which emits due to the vehicles waiting for parking slots. This system minimizes the parking waiting time in the large-sized parking facilities.
It also helps in solving problem of illegal parking and reduction of the traffic jam on the roads. It would also help reduce the man-power in the parking areas which would greatly reduce the cost and error in the process as it has all the records of each vehicle. It also helps to detect the theft cars which are very useful nowadays. Therefore, the new proposed smart parking system has been proved to be the best solution for all the problems regarding traffic issues.

IX. FUTURE SCOPE: THE CONCEPT OF SMART CITIES HAS ALWAYS BEEN A DREAM

To create car parking system to work as an operational platform in a smart city will be the aim of this new project. There will be a high authority to get access of information managed by the car parking system center, for the relevant management and control entities, including a highway Centre, emergency Centre, traffic control Centre, and police. The sensor after sensing the information regarding vehicle lots it will send the updated information to parking meters, which will forward this information to the information center.

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