



# **A Review on Smart Parking Management System Using Vehicle Authentication**

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**ABSTRACT:** With rapid increase of automobiles in cities, parking has become a serious issue and even worsen everywhere. This project proposes an intelligent solution for managing and monitoring free parking space and automated guidance for user to park the car. It aims at implementing smarter and better parking guidance mechanism which significantly reduces difficulty in conventional parking system. The system can monitor the state of every parking space by deploying a sensor node on the space. Accordingly sensor sense the status of car parking space and displays the information on the screen for the user, thereby reducing the time for the driver to find vacant empty space and almost reduce the chances of entering into the wrong way which might lead into the traffic jam. It also has a message facility by which a user can book a parking slot from any remote area through wireless module and there is a facility to book the slot for the certain time limit. It also facilitates security system, in which each and every vehicle is allowed to enter and exit after verification.

**KEYWORDS:** Authentication, GSM, OCR, Sensor node.

## **I. INTRODUCTION**

Nowadays we are facing a main problem in malls function halls and etc., is parking, it is due to the lack of sufficient parking space. In now a days the vehicles in a family are greater than the head count of the family members, and due this the vehicles are also increased in the country and which leads to the parking scenario is woefully falling short to the current requirements in the country. Due to this the current situation of the parking is difficult in the weekends and which increases the time to park the vehicle and it also increases the fuel consumption of the vehicle and it leads to park the vehicles on the road sides. And during the working days the companies and offices are facing the problem of the parking in urban areas. Now a days in our country the selling of the vehicles are most affordable to the low income group families also. The vehicles for a families are much higher than the country can able to manage the parking affordably.

In our country the cities are highly congested and on that the vehicles especially the cars are taking lot space to occupy the space. Due to the increase in vehicles the parking space is also not sufficient in this congested cities. And one more issue is also added to this is pollution, which effects the entire environment due to this increase in vehicles.

### **Possible Solutions to the Hazard**

The authorities of our country are really want to take a look on the situation and they have to plan some policies on to the issue and can effectively tackle it. One way to handle the situation of both parking and pollution is made a policy like odd and even system which was successfully working in National capital region of our country and due to this the number of vehicles on the road in the congested cities are decreased and the level of the pollution in cities also decreases. And if the individual usage of the vehicles decreases means it leads to the solution for the parking in the available space. The rental charges for parking should be depend on the demand leads to less usage of the individual vehicles at the time of weekends and party times and which leads to increase the free space of parking in malls, events and function halls etc., and it also leads automatically to limits the vehicles in the major sites of heritage zones and tourist places.



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Otherwise we have to implement the effective parking in a less area of a congested sites and the system is much effective like the parking system in Mangalore city.

This system is a parking guidance system that advises the vehicles about availability in multiple parking zones, allowing the vehicle to make a decision on where to park long before they reach one point. Using effective traffic and safety methods, this parking system effectively guides the vehicles with minimum effort in as short as possible time. Parking system makes the most of available parking spaces and increases the profitability of parking facilities. This Parking system also gives the client an effective tool to monitor, operate and maintain the entire parking facility effectively and efficiently. Parking system also has the possibility of an online reservation system using mobile for users to book parking a parking slot.

## Benefits of Implementing Parking system

1. Less congestion due to vehicles driving around looking for parking.
2. Reduction in time and fuel spent by road user searching for parking.
3. Less queues as motorists will be guided to parking areas.
4. Better flow of traffic through the area.
5. Intelligent Parking results in higher revenues and profitability for parking facilities.

## II. PROPOSED WORK

Recently, with the explosive increase of automobiles in cities, parking problems are serious and even worsen in many cities. This project proposes an intelligent solution for managing and monitoring free parking space in larger area and automated guidance for user to park the car. It aims at implementing smarter and better parking guidance mechanism which significantly reduces vehicle parking time. The system can monitor the state of every parking space by deploying a sensor node on the space. Accordingly sensor sense the status of car parking space and displays the information on the screen for the user, thereby reducing the time for the driver to find vacant empty space and almost reduce the chances of entering into the unusual space which might lead into the traffic jam. It also has a message facility by which a user can book a parking slot from any remote area through wireless module and there is a facility to book the slot for the certain time limit. It also facilitates security system, which provides safety of vehicles in parking using image processing as shown in the figure 1.

## III. RELATED WORK

Some of the recent studies shows about the parking management and the slot management. And also gives the information about reservation based parking management.

Chi-Hung Chuang, Luo-Wei Tsai [1], developed a monitoring system for parking lot management system and the result of access management is reduced the human resource through the recognition car license. The constraint of this project is the recognition takes more time to compare.

Mingkai Chen [2] developed a parking guidance and information system based on wireless sensor system and the information is transmitted between the nodes and processing the data, and the information passes to the display drivers. In this the constraint is if the main node of the sensor system fails means the total block is failed.

Huang Cai-mei. [4] Presented an idea for reserving the parking slots and reverse cars look for the intelligent terminals to achieve the parked position of vehicles and get the guide route, user can quickly find the parking area.

Bhosale Swapnali [5] developed an idea for generating the multiple images using a fixed camera capture under different variations. Multiple images detection & recognition is important in the analysis of video data and higher level security system.

Vanessa W.S. Tang [7] presented an idea on WSN-based intelligent car parking system and the sensors are deployed into a car park field, with each parking lot equipped with one sensor node, which detects and monitors the occupation

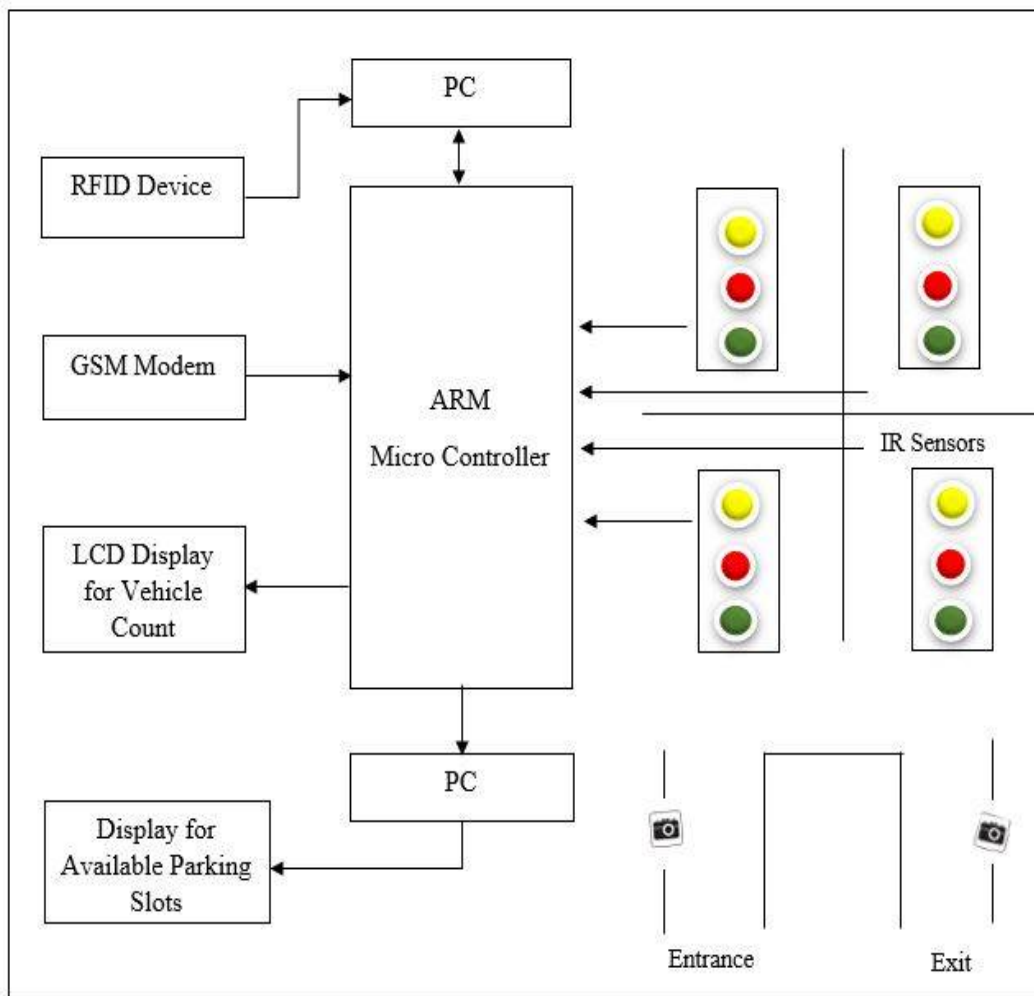
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of the parking lot. The constraint of the project is that they deploy only sensor node if it fails means total lot information is lose.

Giuliano Benelli [8], develops an idea that the users use their own mobile phone for allows an electronic ticket to enter and exit the parking and as an electronic wallet to pay automatically for it.



**Figure 1:** Proposed block diagram

## IV. CONCLUSION

Despite of avoiding the worse traffic situation in the parking it provides the information of availability of the free slots and guidance for them to occupy the free slot. And for an effective parking system it also provides vehicle authentication.

## REFERENCES

- [1] Chi-Hung Chuang, Luo-Wei Tsai, "Vehicle License plate recognition using super resolution technique", 2014 11th IEEE International Conference on Advanced Video and Signal Based Surveillance (AVSS).



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- [2]Ming kai Chen, “A Parking Guidance and Information System based on Wireless Sensor Network”, IEEE International Conference on Information and Automation Shenzhen, China June 2011.
- [3] Pahang, “Development of an Automatic Parallel Parking System for Nonholonomic Mobile Robot”, International Conference on Electrical, Control and Computer Engineering Pahang, Malaysia, June 21-22, 2011.
- [4] Huang Cai-mei, He Zhi-kun, “Design of Reverse Search Car System for Large Parking Lot Based on NFC Technology”, 2014 IEEE.
- [5]BhosaleSwapnali B, Kayastha Vijay S, “Feature extraction using surf algorithm for object recognition”, International Journal of Technical Research and Applications
- [6] Face recognition using principal component analysis and neural networks, at: <http://www.researchgate.net/publication/23595016>.
- [7] W.S. Tang, Yuan Zheng, “An Intelligent Car Park Management System based on Wireless Sensor Networks”, 2009 IEEE.
- [8] Giuliano Benelli, Alessandro Pozzebon, “An Automated Payment System for Car Parks Based on Near Field Communication Technology”, University of Siena, Italy be nelli,alessandro.pozzebon { @unisi.it }