



## Review Paper on Smart Parking System Vehicle parking Management System

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**Abstract**— The Project Title is Vehicle Parking Management System” Present by the AI&ML based smart parking system which provides an optimal solutions for the parking problems in metropolitan cities and other public places . As a result,there are too many vehicles on the road &insufficient parking spaces.These allows users to check for available parking space online from anywhere for hassle free parking. Thus ,the system solves the parking issue.

**Keywords** -Smart Parking , Internet of Things ,Mobile Application, Show available parking lots as per location or registration ,Time Duration , Online Payment .

### I. INTRODUCTION

The Internet of Things ( AI&ML) is the network of physical object devices , vehicles,buildings and other items-embedded with electronic ,software,ultrasonic sensors ,and network connectivity that enables these object to collect and exchange data.The AI&ML allows objects to be sensed and controlled remotely across existing network ,infrastructure ,creating opportunities for more direct integration , of the physical world into computer- based systems,and resulting in improved efficiency ,accuracy and acuator .With the implementation of the smart parking system,patrons can rasily locate and secure a vacant parking space at any car park deemed convenient to them .Vehicle ingress and egress are also made more convenient with the implementation of hassle free.To implement this mobile application will allow an end user to check the availability of parking space and look a particular lot accordingly.Each the user gets know to the availability / un-availability of the parking space prior to his/her entry into the parking place Implementation involves minimal human interaction and provides a seamless parking experience thereby reducing a lot of time wasted by the user in parking his/her vehicle .

### II. LITRATURE SURVEY

A. *ADITYA BASU [1]-*

B. *He's says that ,Smart Prking system typically obtains information about parking spacesin a particulr available position .It involves using low-cost sensors,real-time data collection and mobile-phone enable automated payment systemthat allow people to reserve parking in advanced or very accurately predict where they will likely find a spot.The monitoring modules includes ultrasonic sensors/ ambient light sensor which identifies the free parking spaceand transmit the Information to control unit through Zig Bee .*

**Limitation:** The limitatuon of this paper is that it does not include payment system,so it is not application for payable parking .

C. *ANUSOOYA G & KUMAR KANNAN [2]-*

D. *Says that, the main objective is to avoid the cramming in the car parking area by implementation an efficient car parking system along with a user - friendly application for an ease of use .Normally at public places such as multiplex theaters ,market areas, hospitals ,fuction-halls ,offices and shopping malls ,one experiences the discomfort in looking out for a vacant parking slot ,though it's a paid facility with an attendant /security guard .The parking management system is proposed to demonstrate hazel free parking*

**Limitations :**If card is lost, It can be misused by some unkwon person

### III. PROPOSED SYSTEM

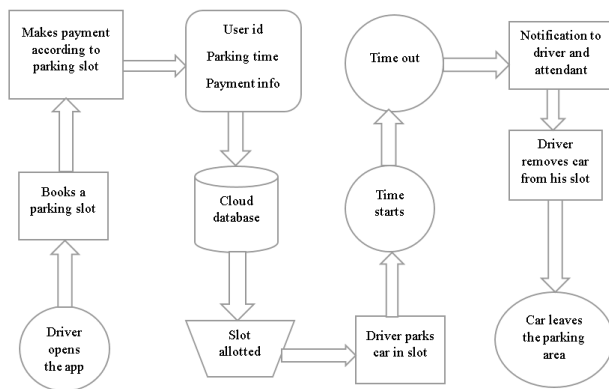
The proposed system is used by the user to reserve the parking slot.Here the user is able to reserve the car parking slot.Once he enter the slot the time period will get started later user eave the slot he need to pay the amount for the period of time is placed his car in the slot area .

A. System Design -

The design of the system architecture describes the structure ,behavior and more views of the system and analysis .The goal of the design is to produced a module of the system which is used to build the system .In the proposed system.Initially once the user login into the application he can view the real time parking slots that ara available to park .After once he view the slot based on FIFO method the parking will get allocated to the users so once he selects the parking slot by entering all the required information he is able to reserv the parking area.

B .System Arcitecture -

The goal of design is to produce a module of the system which is used to build the system .Fig 1 shows the peoposed system where :



1. The user will register to the ppplication ,later he get login in to the application by entering the user name and password
2. Intially in the homepage he is able to view the real time slots that are availble
3. By viewing the availability of the slots he selects the particular slot area and enters the required information such as vehicle number ,parking slot number ,intime ,outtime .
4. The data is sent into the cloud that slot gets allocated to the user.
5. Once the selected outtime is getting in into the finish ,if the person did not recive back his car the alert message will be sent to the usre .
6. Later the user leaves the parking slot area he gets in to paid to the repective time period .
7. Later the availability of the slots will get updated in the homepage to view .

B. Algorithms :

Algorithm can perform calculation ,data proccessing ,and automated reasoning tasks .As an effective method ,an algorithm can be expressed within a finit amount of space and time in a well-defined formal language for calculating a function .

Algorithm 1: Algorithm of System Operations .

Step 1- Start

Step 2- If user not registered

User register into the system

Else

Login into the sysytem

Step 3- User sends the request

Step 4- Staff will receive the request

Step 5-if parking space is not available

Staff wil send the message that slotis not available (try another park! Unavailable space )

Go to step 3

Else

Staff will send the reserve parking slot number of the user

Step 6- user enter the car parking

Step 7-End

Algorithm 2:

Step 1- Start

Step 2- detects the vehicle using the ultrasonic sensor

Step3- Update the staff table

Step 4- if the vehicle is leaving

Update the staff table

Go to step 2

Else

Go to step 2

Step 5-End

After parking the car ,the ultrasonic sensors detect the change in the signal .The system updates the state of each lot evry 2-3 minutes to update the table case , the achieved by the setting of the system as shown in algorithm 2: The new message will be selected based on the reserved parking lot of the current vehicle

C. Working process of parking slot

When the ultrasonic sensors sense the presence of the vehical it will send the signal to the arduino.Then Arduino will transmit the signal to the relay .Relay is connected to the led bulbs .When it recive the signal sent by the Arduino , based on that signal it will on or off the bulb .Ultrasonic sensor work by emitting sound waves then wait for the sound to be reflected back .When the car rnters the respective slot ,the sound waves sent by the ultrasonic sensor hit the car and reflected back and sence the presence of car .

IV APPLICATIONS

The importance of smat vehicle parking :

1. The system enables the user to reserve a particular parking space in advanced .

2. **Accurately sense and predict spot /vehicle occupancy in real time .**
3. **Guides residents and visitor to available parking spot.**
4. **Availability information in specific parking district.**
5. **It also equipped with payment option .**
6. **Helps the free flow of traffic in the city leveraging AI&ML Technology .**
7. **Smart parking plays important role in creating better urban environment by reducing the emission of CO2 and other pollutants .**
8. **End user function .**
9. **Highly scalable & Robust**

### V .CONCLUSION

In conclusion , car park user management issue raise huge concern for organization and park manager.The problem which arise while working with smart parking system as well as the solution ha been described which gives a good

platform for all the users. With the implemetation of smart parking system ,it assures the ease of life for individual who struggle in daily routines of their day to day life . The system that we propose provides real time information regarding availability of parking slots for them by theis time from searching for parking slots .

### VI.REFERENCES

- [1] capitalize only the first word in a paper title, except for proper nouns .
- [2] Y. Yorozu, M. Hirano, K. Oka, and Y. Tagawa, "Electron spectroscopy studies on magneto-optical media and plastic substrate interface," IEEE Transl. J. Magn. Japan, vol. 2, pp. 740-741, August 1987 [Digests 9th Annual Conf. Magnetics Japan, p. 301, 1982].
- [3] DharminiKanteti, D V S Srikar and T K Ramesh: smart parking system for commercial stretch in cities
- [4] Georgios Tsaramiris, IoannisKaramitsos, CharalamposApostolotopoulos: smart parking-an AI&ML application of smart cities .
- [5] Rosario Salpietro, Luca Bedogni, Marco Di Felice, LucianoBononi: Park here! A smart parking based on smart phones' embedded sensors and short range communication technologies.

