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# Online Carparking with Slot Automation System

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**ABSTRACT:** The main aim of this project is to reduce the traffic in the parking place. Normally we can see in the multiplexes, cinema halls, large industries, and function halls there is problem they have to go and search which line is empty and which line having place to park the vehicle, for parking then they need workers for parking in correct position it is the money consumed process. So to avoid this problem Car Parking System project is implemented.

In this Electronics and communications project we have to use the equipment's of microcontroller, Infrared transmitters and infrared receivers for each and every parking slot, IR receivers should be connect to the microcontroller. Here we are using infrared communication because it can support LOS (line of sight communication), and while enter into gate for parking there is the display to get the information regarding which line is empty. This information gives the microcontroller.

The microcontroller first give the information to the IR transmitter then it gives to the IR receiver then this information show on the display, so by this process the parking is easy process. So the traffic can be reduced in the parking place of the theatres, multiplex, and in large industries and in commercial places.

## I. INTRODUCTION

### PROBLEM DEFINITION

In the modern world, where parking-space has become a very big problem and in the era of miniaturization, it is become a very crucial necessity to avoid the wastage of space in modern, big companies and apartments etc. In places where more than 100 cars need to be parked, this system proves to be useful in reducing wastage of space. This Automatic Multi-Level Car Parking System enables the parking of vehicles, floor after floor and thus reducing the space used. Here any number of cars can be parked according to the requirement. This makes the system modernized and evens a space-saving one. There are several advantages of employing a car park system for urban planners, business owners and vehicle drivers. They offer convenience for vehicle users and efficient usage of space for urban-based companies. Automated car park systems save time, money, space and simplify the often tedious task of parking.

### PROBLEM DESCRIPTION

This project deals with one time parking registration to save the customer's time. Customer's information is collected by securities at the gate and that information is maintained in a database. In past system this information is maintained in excel book sheet to overcome this we developed a project. During parking, the token number is generated automatically with the help of vehicle number and the vehicle count. When returning from the parking area, the amount will be collected based on the parking time. The capacity details will be sent to the security officer when there is a new customer to park their vehicle. While the customer taking back of the vehicle the amount will be collected. The project purely based on web application.

## II. RELATED WORK

In current parking entry system a lot of paper work is involved. The Project Metrics has to enter all the details of project, documents, and tasks. It also maintenance the team information and also efforts estimation. For this purpose the organization maintain the size of the document and update the information about member's details manually. •

The existing system only provides text-based interface, which is not as user-friendly as Graphical user Interface. The system is implemented in Manual, so the response is very slow. The transactions are executed in off-line mode, hence the data capture and modification is not possible. The reports cannot be generated due to batch mode execution.

**Dr Y Raghavender Rao** et.al has proposed Inlatestinstances the idea of clever cities have won grate popularity. Thanks to the evolution of Internet of factors the concept of clevertown now appears to be achievable. Consistent efforts are being made withinside the field of lotwith the intention to maximize the productiveness and reliability of city infrastructure. Problems such as, traffic congestion, constrainedvehicle parking centers and avenue safety are being addressed with the aid of usingIoT. In this paper, we gift an lotprimarily based totally cloud includedclever parking device. The proposed Smart Parking deviceincludes an on-site deployment of an IoT module this is used to reveal and signalize the country of availability of everyunmarried parking area. A cellularutilityis likewise supplied that permitsanceaserson to testthe supply of parking area and ee-e book a parking slot accordingly. The paper additionally describes a high-stage view of the device architecture. Towards the cease, the paper discusses the operating of the device in form of a use case that proves the correctness of the proposed model.

**K. Choeychuen** et.al has proposed this paper affords a strongmethod for detection of to be hadautomobile parking spaces. With low excellent of video digital digicam as webcam and dynamic alternate of mildroundthe auto parking, it is tough to correctlylocate or apprehend the cars. Moreover the proposed appearance-primarily based totallymethod is green than recognition-primarily based totallymethodas it do now no longerwant to examine a large of multi-view objects. In this paper, we advocate adaptive historyversion-primarily based totallyitem detection with dynamic mixing capabilities of masked-vicinity and part orientation histogram (EOH) density. The common variance of variance of depthalternate for dynamic historyversion is used to alternate ratio of mixing capabilities dynamically. The masked-vicinity density is density of predefined vicinity of a parking slot this is weighted via way of means of Gaussian masks to strong density computation and the threshold orientation histogram (EOH) density is density of the EOH withinside the predefined vicinity that may be used below low comparisonpicture as night time scene. The experiments are executedeach in simulation version and actual scenes. The consequencesdisplay the proposed method can handle dynamic alternate of mild efficiently.

**H. Ichihashi, A. Notsu, K. Honda, T. Katada and M. Fujiyoshi** et.al has proposed the most prevailing approach now for parking lot vacancy detecting system is to use sensor-based techniques. The main impediments to the camera-based system in applying to parking lots on rooftop and outside building are the glaring sun light and dark shadows in the daytime, and low-light intensity and back-lighting in the nighttime. To date, no camera-based detecting systems for outdoor parking lots have been in practical use. A few engineering firms provide the camera-based system, which is only for underground and indoor parking lots. This paper reports on the new camera based system called ParkLotD for detecting vacancy/occupancy in parking lots. ParkLotD uses a classifier based on fuzzy c-means (FCM) clustering and hyper-parameter tuning by particle swarm optimization (PSO). The test result of the detection error rate for the indoor multi-story parking lot has improved by an order of magnitude compared to the current system based on the edge detection approach. ParkLotD demonstrates high detection performance and enables the camera-based system to achieve the practical use in outdoor parking lots.

**H. Ichihashi, T. Katada, M. Fujiyoshi, A. Notsu and K. Honda** et.al has proposed The most prevailing approach now for parking lot vehicle detection system is to use sensor-based techniques such as ultrasound and infrared-light sensors. A few engineering firms provide camera-based systems, which are only for underground and indoor parking lots due to the poor accuracy of the detector. The main impediments to the camera-based system in applying to outdoor parking lots are adherent rain drops on the lens in the rain, glaring sun light and dark shadows in the daytime, and low-light intensity and back-lighting in the nighttime. To date, no camera-based detecting systems for outdoor parking lots have been in practical use. This paper reports on the performance of the detector based on the fuzzy c-means (FCM) clustering and the hyperparameter tuning by particle swarm optimization (PSO). The new system was introduced to an underground parking lot in Tokyo in early October 2009 and achieved the detection rate (sensitivity/specificity) of 99.9%. The system was also tested at an outdoor (rooftop) parking lot for a period of two months and achieved 99.6%.



The performance clearly surpassed the initial goal of the project. In terms of classification accuracy, the FCM classifier is better than the support vector machine (SVM) and the computation time for training is an order of magnitude smaller than that of SVM.

**Haritaogru, D. Harwood and L. Davis** et.al has proposed W4 is a actual time visible surveillance device for detecting and monitoring more than one humans and tracking their sports in an out of doors environment. It operates on monocular gray-scale video imagery, or on video imagery from an infrared camera. W4 employs a mixture of feature evaluation and monitoring to discover humans and their parts (head, hands, feet, torso) and to create fashions of humans's look so they may be tracked thru interactions which includes occlusions. It can decide whether or not a foreground vicinity carries more than one humans and might section the vicinity into its constituent humans and music them. W4 also can decide whether or not humans are wearing gadgets, and might section gadgets from their silhouettes, and assemble look fashions for them in order that they may be diagnosed in next frames. W4 can apprehend activities among humans and gadgets, which includes depositing an object, exchanging bags, or disposing of an object. It runs at 25 Hz for 320x240 decision pixels on a four hundred Mhz dual-Pentium II PC.

**Comaniciu D., Ramesh V. and Meer P** et.al has proposed A new approach for real-time monitoring of non-inflexible items visible from a transferring digital digicam is proposed. The valuable computational module is primarily based totally at the imply shift iterations and nds the maximum prob cap in a position target position in the present day frame. The dissimilarity among the goal model (its color distribution) and the goal candidates is expressed with the aid of using a metric derived from the Bhattacharyya coefficient. The theoretical evaluation of the approach indicates that it pertains to the Bayesian framework while imparting a practical, speedy and efficient solution. The functionality of the tracker at hand le in real-time partial occlusions, significant clutter, and goal scale variations, is verified for numerous picture sequences.

**H. Ichihashi, A. Notsu, K. Honda, T. Katada and M. Fujiyoshi,** et.al has proposed The maximum winning technique now for car parking zone emptiness detecting device is to apply sensor-primarily based totally techniques. The principal impediments to the digital digicam-primarily based totally device in making use of to parking masses on rooftop and out of doors constructing are the obtrusive sun mild and darkish shadows within side the daytime, and low-mild intensity and back-lighting fixtures within side the nighttime. To date, no digital digicam-primarily based totally detecting structures for outside parking masses had been in sensible use. A few engineering corporations offer the digital digicam-primarily based totally device, that's best for underground and indoor parking masses. This paper reviews on the brand new digital digicam primarily based totally device called ParkLotD for detecting emptiness/occupancy in parking masses. ParkLotD makes use of a classifier primarily based totally on fuzzy c-means (FCM) clustering and hyper-parameter tuning via way of means of particle swarm optimization (PSO). The take a look at result of the detection mistake rate for the indoor multi-talecar parking zone has stepped forward via way of means of an order of significance in comparison to the modern-day device primarily based totally on the facet detection technique. ParkLotD demonstrates excessive detection overall performance and allows the digital digicam-primarily based totally device to achieve the sensible use in outside parking masses.

**H. Ichihashi, K. Miyagishi and K. Honda,** et.al has proposed The maximum triumphing method now for car parking zone emptiness detecting device is to apply sensor-primarily based totally techniques. The most important impediments to the digital digicam-primarily based totally device in making use of to parking plenty on rooftop and out of doors constructing are the evident sun mild and darkish shadows within side the daytime, and low-mild intensity and back-lighting fixtures within side the nighttime. To date, no digital digicam-primarily based totally detecting structures for out of doors parking plenty were in realistic use. A few engineering companies offer the digital digicam-primarily based totally device, that's most effective for underground and indoor parking plenty. This paper reviews on the brand new digital digicam primarily based totally device called ParkLotD for detecting emptiness/occupancy in parking plenty. ParkLotD makes use of a classifier primarily based totally on fuzzy c-means (FCM) clustering and hyper-parameter tuning through particle swarm optimization (PSO). The checkend result of the detection mistake rate for the indoor multi-talecar parking zone has advanced through an order of value in comparison to the cutting-edged device primarily based totally on the side detection method. ParkLotD demonstrates excessive detection overall performance and allows the digital digicam-primarily based totally device to achieve the realistic use in out of doors parking plenty.

**H. Ichihashi, A. Notsu and K. Honda,** et.al has proposed This paper proposes an additional version of the fuzzy c-means based classifier (FCMC). The classifier FCMC-R treats relational data instead of object data. FCMCs use covariance structures to represent flexible shapes of clusters. Despite its effectiveness, the intense computation of covariance matrices is an impediment for classifying a set of high-dimensional feature data. In order to tackle with this

problem, we proposed a way of directly handling highdimensional data, i.e., FCMC-H. The third type of the FCM classifier is the relational classifier FCMC-R, which is derived from FCMC-H. The relational data represented by a relational matrix are based on dissimilarities or distances between object data. The triplets, i.e., FCMC, FCMC-H, and FCMC-R are equivalent when the dimensionality of feature vectors is not very high and the dissimilarity is represented by Euclidean distances. The randomized test set performance of FCMC on the sets of object data from UCI repository is comparable to that of the support vector machine (SVM) classifier. The performances of the triplet in terms of 100 times three way data splits (3-WDS) procedure are compared. The triplet surpasses the k-nearest neighbor (k-NN) classifier, which is a well established and very popular relational classifier.

Zhou, F., & Li, Q et.al has proposed Concerning the phenomenon that common parking carrier couldn't fulfill the growing call for of the non-public automobile owners, an smart parking steering machine primarily based totally on ZigBee community and geomagnetic sensors changed into designed. Real-time automobile function and associated traffic statistics had been accrued through geomagnetic sensors around parking masses and up to date to middle server through ZigBee community. On the alternative hand, out-door Liquid Crystal Display displays managed through middle server can display statistics of to be had parking places. In this paper, steering approach changed into divided into 4 levels, which could offer clean and powerful statistics to drivers. The experimental outcomes show that the space detection accuracy of geomagnetic sensors changed into inside 0.4m, and the lowest package deal loss fee of the wi-fi community with inside the range of 150m is 0%. This machine can offer answer for better parking carrier in smart cities.

### III. PROPOSED METHODOLOGY

After understanding the existing system and understanding the need for developing a new system different people involved in the related activities have been consulted. The data needed for the study has been collected records. The computerization of this system would avoid the wrong interpretation and bad calculation of data. The record data is maintained and backed up such a way that data is not loss. The speed of the system could also increased. To generate the quick reports. To make accuracy and efficient calculations. To provide proper information briefly. To provide data security. To provide huge maintenance of records. Flexibility of transactions can be completed in time.

#### ADMINISTRATION MODULE

Administration is the main person of this system. He can have all the privileges to do anything in this system. Admin can get the information regarding Car parking details and various sources.

#### CLIENT MODULE

The client details are entered in this module. The customer entry module consists of client maintenance (i. e) about addition, deletion modification and viewing. Client name, address, date of parking, no of days is accepted. These details are maintained in the table of the database.

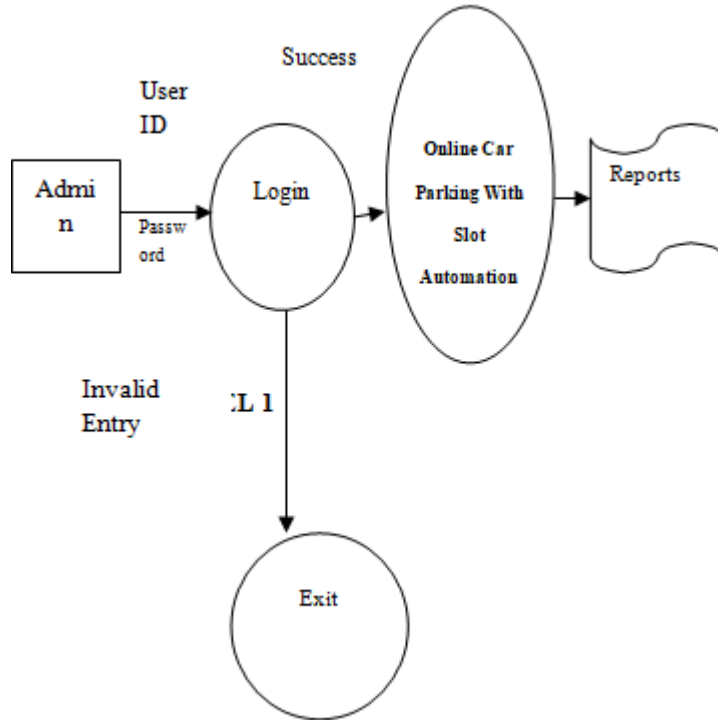
#### PARKING ALLOTMENT MODULE

In this module can easily find client vehicle where is to be available and also find free parking area's on each and every rows. The parking area contains unique id that make us very useful to find the vehicle easily.

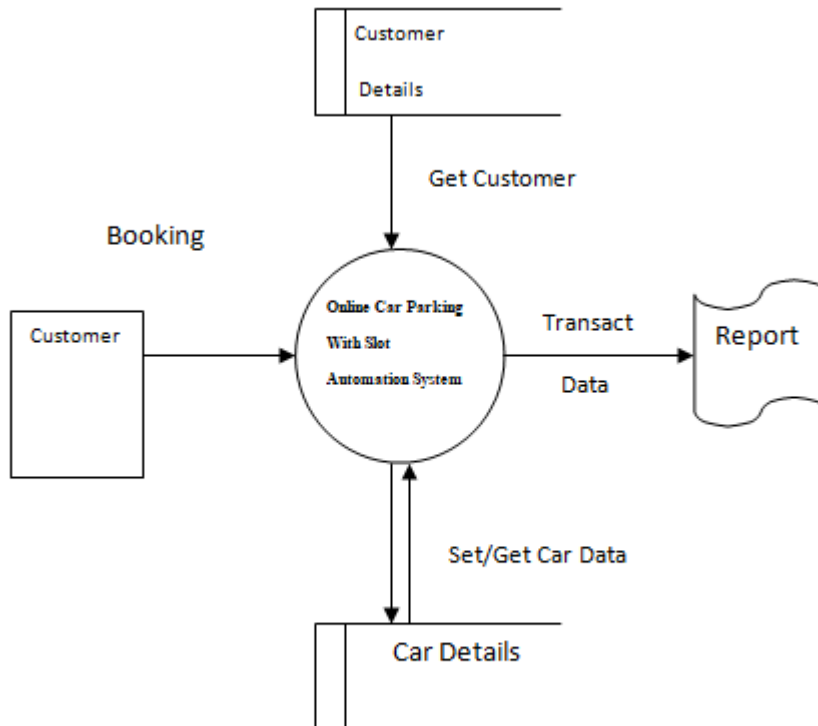
#### REPORT MODULE

Reports module is designed to give user friendly information to give status on the day to day transaction made in parking system. It can be generated by the admin for various purposes. Based on the reports admin take decisions of the system.

DATA FLOW DIAGRAM  
LEVEL 0



LEVEL 1



#### IV. CONCLUSION

Thus system achieved automatic token generation and both customer id and token number send to customer's mobile number. The current capacity inside the parking area is send to the gate security mobile number. Through this the customer can able to identify the current status. By offering credit points also attract the customers to park many times in the particular parking area. However at some points some features may have been missed out which might be considered for further modification of the application. The project provides a best assistance in the network based regime. It allows adding up the following facilities in future.

#### V. FUTURE ENHANCEMENT

It facilitates to generate the barcode for token. Using the automatic vehicle number detector for registration. Using sensor devices if there is available space in parking area the gate opens automatically when the vehicle comes. Global Positioning System (GPS) technique checks for availability of the parking area.

#### REFERENCES

- [1] Dr Y Raghavender Rao "Automatic smart parking system using IOT "International Journal Of Engineering Technology Science and Resarch(IJETSR),Vol 4 ,Issue 5,May 2017
- [2] K. Choeychuen, "Available car parking space detection from webcam by using adaptive mixing features," 2012 International Joint Conference on Computer Science and Software Engineering (JCSSE),pp.12-16, May 30 2012-June 1 2012.
- [3] H. Ichihashi, A. Notsu, K. Honda, T. Katada and M. Fujiyoshi, "Vacant parking space detector for outdoor parking lot by using surveillance camera and FCM classifier," IEEE International Conference on Fuzzy Systems, pp.127-134, 20-24 Aug. 2009.
- [4] H. Ichihashi, T. Katada, M. Fujiyoshi, A. Notsu and K. Honda, "Improvement in the performance of camera based vehicle detector for parking lot," IEEE International Conference on Fuzzy Systems , pp.1-7, 18-23 July 2010.
- [5] I. Haritaogru, D. Harwood and L. Davis, "W4: RealTime Surveillance of People and their Activities," IEEE Transaction on Pattern Analysis and Machine Intelligence, Vol. 22, No.8, pp. 809-830, 2000
- [6] Comaniciu D., Ramesh V. and Meer P., "Real – Time Tracking of NonRigid Object using Mean Shift," Proceedings of IEEE International Conference on Computer Vision and Pattern Recognition, 2000.
- [7] H. Ichihashi, A. Notsu, K. Honda, T. Katada and M. Fujiyoshi, "Vacant parking space detector for outdoor parking lot by using surveillance camera and FCM classifier," Proc. of 2009 IEEE International Conference on Fuzzy System, Jeju, Korea, Aug. 20- 24, 2009.
- [8] H. Ichihashi, K. Miyagishi and K. Honda, "Fuzzy cmeans clustering with regularization by K-L information," Proc. of 10th IEEE International Conference on Fuzzy Systems, Melbroune, Australia, vol.3, pp.924-927, 2001.
- [9] H. Ichihashi, A. Notsu and K. Honda, "Triplet of FCM classifiers," Proc. of 2009 IEEE International Conference on Fuzzy System, Jeju, Korea, Aug. 20-24, 2009.
- [10] Zhou, F., & Li, Q. (2014, November). Parking Guidance System Based on ZigBee and Geomagnetic Sensor Technology. In Distributed Computing and Applications to Business, Engineering and Science (DCABES), 2014 13th International Symposium on (pp. 268-271). IEEE





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