

# DESIGN AN APPLICATION FOR REAL TIME SMART PARKING

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**Abstract :** The numbers of personal vehicle usages is increasing percentage of manifold. People prefer personal vehicles to interface than depend on public transportations. Finding a parking spaces in most cosmopolitan areas, Preferably during the busy hour, is difficulty for drivers. Due to this there is a need to provide sufficient parking places coupled with plenty of slots to help the users to park his vehicle safely, and also to ensure the users does not end up parking on non-parking layout and causes a great discomfort to pedestrians. The ideas behind our Android Application-“Smart parking” is to help the user analysis area’s where parking is not occupied and number of slot free in that areas. Additionally, four hour prior to his expected arrivals, the users can pre-books a slot in the areas he desire if it is available. This helps to reduce the work on the administrators as his physical demonstration work reduce drastically and driver can follow the parking slots through Android Applications. Payment service are made free using online Wallet, so the users are required to own a credit cards or debit cards.

*IndexTerms* - smart parking system , android

## 1. Introduction

Too many cars, too much traffic and there is no enough parking area. This is the situation which is seen in most of the metropolitan cities today. People keep on roaming on roads searching for a parking space to park their vehicles especially at peak hours of time. Our proposed system presents a smart parking system that regulates a number of vehicles to the nearest parking space at any given time based on the parking space availability. “Smart Parking System (SPS)” is implemented using the Operating System Android. The user requests the Parking Control Unit to check the status of available parking slots. As soon as the user request, all the available free slots are displayed to the user. If the availability of parking space is confirmed, the user can book the parking slot and proceed to pay. The vehicle follows its path towards the starting of the parking area. The user fixes his slots by showing his confirmation details to the concerned person at Parking area. After communicating, the vehicle will further follow its path to the allocated parking slot. After successful parking the slot details are updated simultaneously in the Administrators database. Finally the time to find for an empty parking slot is minimized. The main responsibility of the Smart Parking System (SPS) is to help the user to find an area where parking is available and total number of slots free in that area. Thus our proposed methodology reduces the user’s effort and time of searching a parking slot.

## 2. Existing System and Proposed System

### 2.1 Existing System

Various methods are used to improve the intelligent parking mechanisms. Study of these existing systems shows that these systems need little or more human intervention for the functioning. One of the existing systems is [01] Intelligent Systems For Car Parking With Image Processing. In this paper, a brown rounded image on parking slot is captured using the camera and it is used to detect the free parking slots. The currently available parking spaces are displayed on the seven segment display. First, the image of the parking slot with the brown rounded image is taken. Then create the binary images according to the brown rounded images. Due to this, we have to remove the noise of the images and identifies the object boundaries. The image detection module determines which objects are round, by determining each objects area and perimeter. Accordingly, the free parking slots are allocated

Another Existing method is Integration of [02] RFID and WSN Technologies in a Smart Parking System. Basically, the SPS provides innovative services for the automatic supervision of paid parking spaces through the deployment of an IEEE 802.15.4-based WSN able to collect and deliver the data to the central server. A customized application on the server analyzes the received information and also sends an alert message to the mobile application of the traffic cop in case of unauthorized use of a reserved space or

expiration of a parking receipt. Drivers can also use the system to pay the fee. The framework of the system consists of WSNs, Smart Gateway (SG), Central Server (CS) and two different mobile applications, called Parking App and Policeman App, designed for vehicle drivers and traffic cops, respectively. The main peripherals of the deployed Zigbee network are Router (R) and Coordinator (C) nodes. The R nodes provide forwarding and routing capabilities, where the c node collects the received data and forwards them to the Central Server. In the RFID-WSN integrated system, the Router Reader (RR) node typology has been introduced, which identifies an R node interfaced with a UHF RFID reader. The designed system consists of a WSN with some R node and RR nodes are spread out in the parking area. In particular, R nodes, equipped with a light sensor, are placed on each parking slot to monitor their state, while the RR nodes are on poles located their neighboring reserved parking space.

The information retrieved by the nodes is delivered, in a multi-hop manner, to the C node, which delivers them to the Smart Gateway. This last one, in turn, tests the collected data and sends them, together with the position of the parking zone, to the CS. the SG provides also an NFC way to finalize users payment for their parking fee. The main function of the RR nodes includes control the reserved parking space and fill that space by using only authorized cars, labeled by UHF RFID tags. More specifically, when the CS receives the information that a reserved parking space has been occupied, it checks if a new RFID tag has been read by the RR node responsible for controlling that specific reserved space, and, in such a case, it verifies its authorizations. The CS maintains a database handling a lot of information about parking spaces available and users payments. In case of improperly use of a reserved space or expiration of parking receipt, a parking monitoring application on the CS informs the traffic staff, exploiting the Google Cloud Messaging (GCM)

Here in this project we are totally changed the application part. By developing the new idea for parking problem. The person who is having parking area in his place can register in this application and then he add the number of vaccines in his location, while registration the place owner should conform the number slots available both two wheeler and four wheeler for parking.

When it comes to user (driver/customer) he should register into application by providing required like mail id, phone number and vehicle details. after logging into the application, he can view the nearly parking slots. After selecting the parking space he should select the number of hours he want to park the vehicle, driver should arrive to the parking point within 30 mins or else the owner have right to cancel the booked parking slots. The driver will be paying the amount based on the number of hours he parks the vehicle.

## Proposed System

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## 3. Methodology

The slot allocation method follows a sequence as stated below:

Step1: Initially the slot selection is made by the user from his mobile phone. He checks for the availability of a parking slot that is nearest to his location. If it is available, he moves to the next stage or else go to the initial state.

Step2: Transfers request for parking slot from the mobile using Android application.

Step3: The Parking Owner gets the slot number requested by the user.

Step4: If the payment is done successfully, then the requested slot is reserved in the parking area.

Step5: After reserving a particular slot by the user then the status will the one slot is booked

Step6: As soon as the vehicle gets entered into the parking slot, the timer gets On.

Step7: As soon as the vehicle moves out of the parking slot, the timer gets OFF.

### Modules

- Smart Parking System mainly consists of two modules. They are
- User Module
- Place owner Module
- 

### 4. Graphics (Flowchart and Outlook)

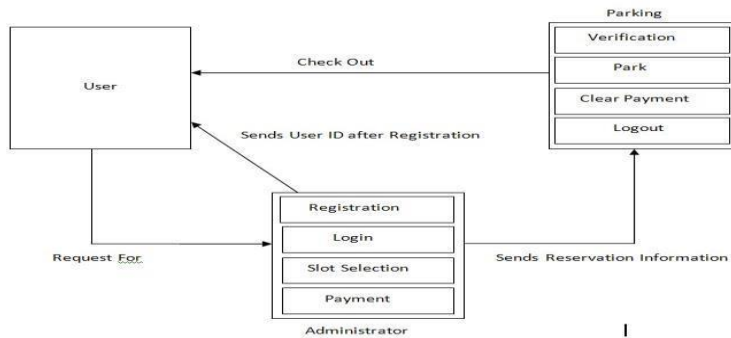


Figure 4.1-System Architecture of Smart Parkin

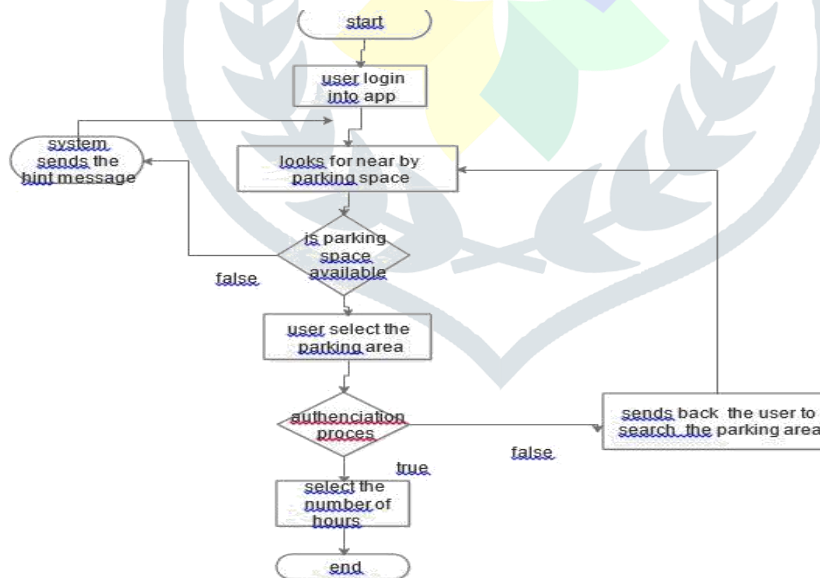


Figure 4.2-user/customer flow chart

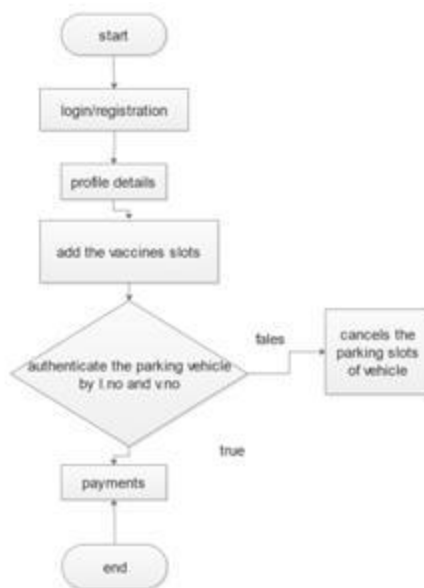


Figure 4.3-place owner flow chat

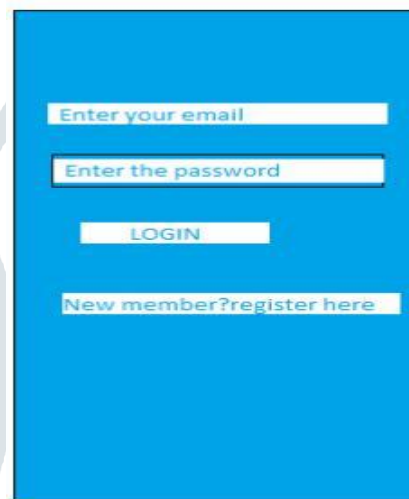


Figure 4.4-front page



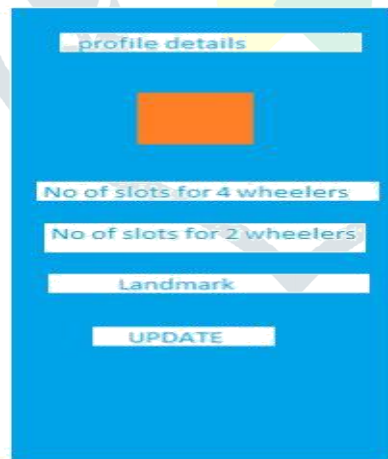
A screenshot of a web form titled "OWNERS REGISTRATION" on a blue background. The form contains several input fields: "NAME", "EMAIL", "PASSWORD", "ADDRESS", and "PHONE NUMBER". Below these fields is a "REGISTER" button and a link that says "Already member?login".

Figure4.5-Owners registration



A screenshot of a login page on a blue background. It features two input fields: "Enter your email" and "Enter the password". Below these is a "LOGIN" button and a link that says "New member?register here".

Figure 4.6- Login page



A screenshot of a profile page on a blue background. At the top, it says "profile details" next to a redacted orange box. Below are three input fields: "No of slots for 4 wheelers", "No of slots for 2 wheelers", and "Landmark". At the bottom is an "UPDATE" button.

Figure 4.7- Profile page



Figure 4.8- vehicle verification

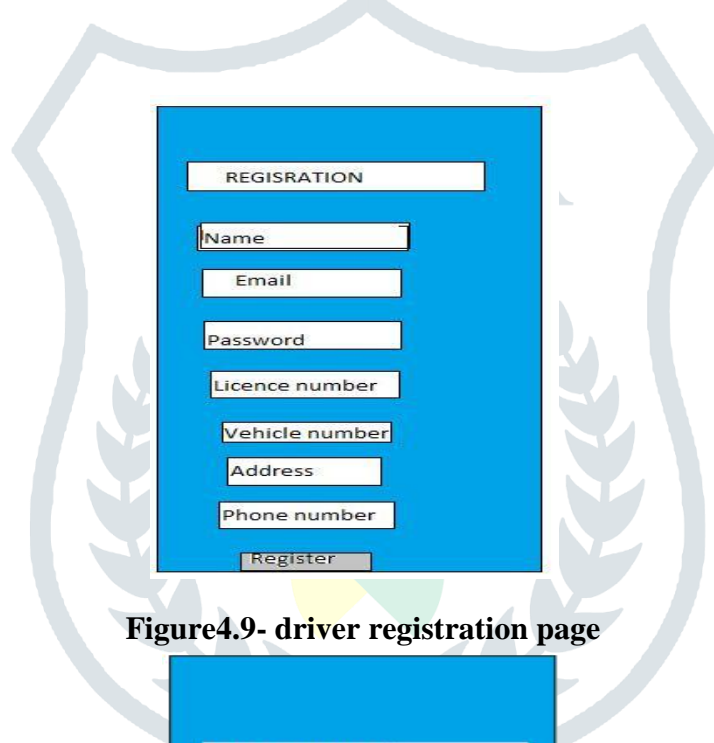


Figure4.9- driver registration page

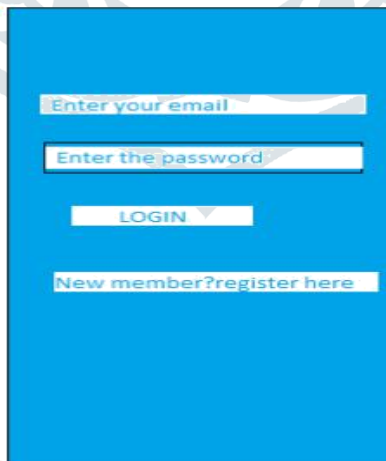
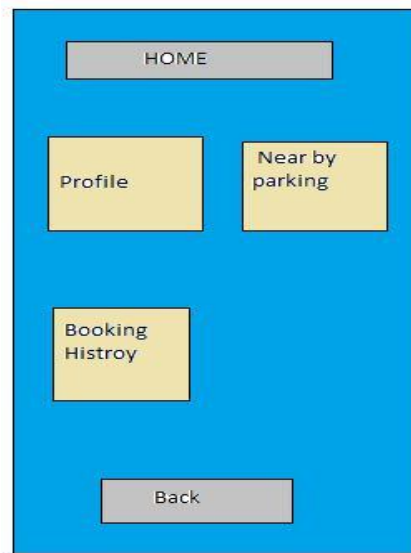


Figure 4.10- login page



**Figure 4.11- Home page**

## 5. Conclusions

In this project, we have presented a smart parking system, called SPS with Reservation, for the management of the off-street parking spots in consolidated cities. In future, SPS puts the management of parking spots into a different perspective that goes over the simple automation of parking system through the use of advanced technological solutions, such as wireless networks and sensor communication. In fact, SPS is concerned with the quality of life in modern cities, in terms of the amount of pollution and effects of the urban traffic congestion on the abilities of the drivers and the quality of mobility in urban areas.

## References

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- [2] L. Mainetti, L. Palano, L. Patrono, M. L. Stefanizzi, and R. Vergallo, "Integration of RFID and WSN technologies in a smart parking system," in Proc. 22nd Int. Conf. Softw., Telecommun. Comput. Netw. (SoftCOM), 2014, pp. 104110.
- [3] Hamada R. H. Al-Absi, Justin Dinesh Daniel Devaraj, Patrick Sebastian, Yap Vooi Voon "A vision based car parking system"