

## WEB AND MOBILE BASED SMART PARKING APPLICATION

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**ABSTRACT:** This paper is to develop a Reservation based vehicle parking system to overcome the problem of unnecessary time consumption in finding parking spot in commercial parking areas. In this proposed system, we reserve the parking slots not only in shopping malls, theatres and offices but also in a busy area such as a local market or a bus stand etc. This is achieved by using the waste land that is surrounded the busy areas and the use of houses that has enough space for a vehicle to park. User can book the slot prior to his journey and he will be notified on the respective date. There is a real-time visual going on when the user wants to book a slot. He will know the slots that are booked and that are vacant. The landowners or the house owners who want to rent the land can also register easily using the application. Thus user can just reserve the slot using our application.

**KEYWORDS:** Android Application, Smart Parking System.

### I. INTRODUCTION

Searching for street parking in crowded urban areas creates many problems and frustrations for drivers. It has been shown that over 40% of the total traffic volume in urban areas is composed of vehicles cruising for parking. A long queue of cruising vehicles can cause serious congestion with the blocking of only a few streets. With the rapid proliferation of vehicle availability and usage in recent years, finding a vacant car parking space is becoming more and more difficult and time consuming. This results in a number of practical conflicts. Parking problems are becoming ubiquitous and ever growing at an alarming rate in every major city. The use of android technology combined with the recent advances in wireless applications could be the key to solve emerging parking problems. The main idea behind the ParkKing application is to help the user search for area where he wants to park and see if parking is available in the respective area and number of slots free in that area. The user can pre-book a slot in the area he desires if it is available some hours prior to his expected arrival. The user can search the parking slot through Android Application and pre-book the slot. Payment services are made available using Paytym. We also use unused land and the empty space that is available and turn the space into a parking lot by which the landowners are also benefited. Thus the application proposed in this paper makes the user hassle free as it reduces the time required for manually searching and waiting for empty slots to park the vehicle and also give the opportunity for the landowners to get profited by renting their free, unused land.

### II. RELATED WORK

The process of building system has always been complex with system becoming larger, the cost and complexities get

multiplied. So the need for better methods for deploying systems is widely recognized to be effective and the applied model should meet a few basic requirements. The model should be structured and cover the entire system development process from feasibility study to programming, testing and implementation. The model should separate the logical system from the physical system. The model should utilize established methods and techniques like database designs, normalizations and structured programming techniques. The model should consist of building blocks, which define tasks, results and interfaces. The model should separate the logical system from the physical system. Documentation should be a direct result of the development work and should be concise, precise and as non-redundant as possible. Based on the above requirements of the system model, system study has been made. Various methodologies have been applied for system study, evolving design documents, data modeling, input screen design and report design.

### III. EXISTING SYSTEM

There are certain features limiting the process of the present system. The drawbacks of the present system are listed below:

- There Is No Proper Space Given For The Vehicles To Be Parked.
- Many Vehicles Are Parked On The Road Which Causes Unwanted Traffic.
- There Is No Security Assured For Your Vehicle.

### IV. PROPOSED SYSTEM

The proposed system takes all the existing problems into account and presents an easy access to the free space that lies around us in an organized manner. The landlord owners who can register themselves to turn their waste land into a land that can be used by people. The customers who can use the services provided by the owners at their convenience.

### V. SYSTEM DESIGN

The system comprises of overall architecture and the components that involved in it.

#### ARCHITECTURE DIAGRAM

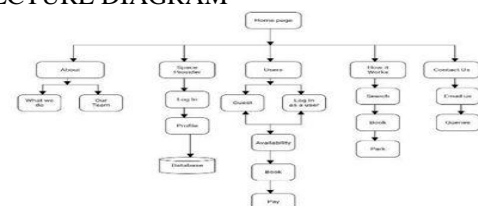


Fig 1.1 System Architecture for Smart Parking System

## SOFTWARE DESCRIPTION

a. JAVA: Java is an object-oriented, platform-independent, multithreaded programming environment. It is the foundation for Web and networked services, applications, platform-independent desktops, robotics, and other embedded devices. Java can be used to create complete applications that may run on a single computer or be distributed among servers and clients in a network. It can also be used to build a small application module or applet for use as part of a Web page.

b. JavaScript: JavaScript is a high-level, dynamic, integrated programming language. It has been standardized in ECMA Script language specification. Alongside HTML and CSS, JavaScript is one of the three core technologies of World Wide Web content production; the majority of websites employ it and all modern Web browsers support it without the need for plug-ins. JavaScript is prototype-based with first-class functions, making it a multi-paradigm language, supporting object-oriented, imperative and functional programming styles. It has an API for working with text, arrays, dates and regular expressions, but does not include any I/O, such as networking, storage, or graphic facilities, relying for these upon the host environment in which it is embedded.

c. SQL: The name SQL stands for Structural Query Language. SQL is a data access language, like any other language, it is used for communication. SQL communicates with database manager. The database manager could be Oracle, Informix, DB2 and SQL database.

d. HTML :Hyper Text Markup Language is the standard language for creating documents for the World Wide Web. An HTML document is a text file, which contains the elements, in the form of tags that a web browser uses to display text, multimedia objects, and hyperlinks using HTML; we can format a document for display and add hyperlinks to other documents. The user interface has been designed in HTML hence can be browsed in any web browser.

e. CSS: By using these style sheets throughout the project, a uniform look and feel can be maintained for all the HTML elements and tags that have been used in the project. If there is any revamp the way the content has been presented in the website, the changes can be made to the appropriate style sheet, which will be reflected across all the style sheets.

f. PHP: PHP is a server side scripting language designed primarily for web development but also used as a general-purpose programming language. Originally created by Rasmus Lerdorf in 1994, the PHP reference implementation is now produced by the PHP development team. PHP originally stood for Personal Home Page, but it now stands for the recursive acronym PHP Hypertext Preprocessor.

g. Bootstrap: Bootstrap is a free and open-source front-end web framework for designing websites and web applications. It contains HTML and CSS based design templates for typography, forms, buttons, navigation and other interface components, as well as optional JavaScript extensions. Unlike many web frameworks, it concerns itself with front-end development only.

## VI. SYSTEM IMPLEMENTATION MODULE DESCRIPTION

### 1. LANDLORD LOGIN CREATION

The user needs to install the “ParKing” application on his Android based device. After installation, the icon of the app will feature on the Home Screen of the user’s device. Initially, the landlords who has the empty land has to register his details with the application for the first time. This is a one-time registration. The landlords has to enter details like name, password, contact number, email\_id, pin code, area, city, type of vehicle to turn their empty land into parking slots.

### 2. VIEW AVAILABILITY IN MAP

The user is provided with multiple parking locations. User has to select one of the locations provided where he desires to park the vehicle. The user can book the parking slots without registering and checks the availability in the desired location he/she needs and book the avail slot that is stored in the database and turns the avail slot into booked. The google map shows the availability with the red marker and the already booked slots in green color. The google map is shown in different type like satellite view, road map etc. and we also enlarge and shrink the map.

### 3. USER LOGIN CREATION

After the user checks the availability, he/she has to select the available slot that will display the address of that slot. To book the selected slot, the user needs to register the selected slot by entering vehicle number, contact number, time, duration, type of vehicle. Then by doing further steps the slot is registered for that user.

### 4. BOOKING AND MAKING PAYMENT

The user checks the availability in the desired location he/she needs and book the avail slot that is stored in the database and turns the avail slot into booked. After selecting the slot, further booking we need to make payment through paytm. If he/she wants cancellation and the money will be refunded to user through some time limit verification.

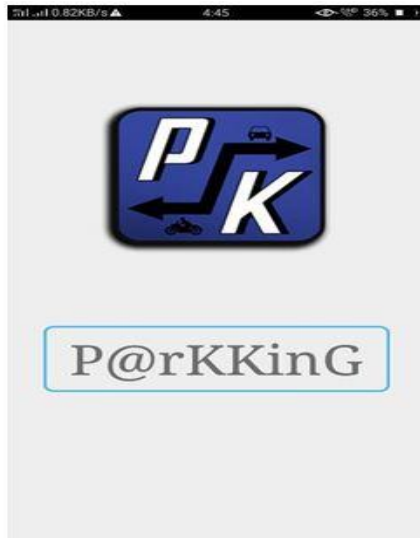
## VII. RESULTS

As by implementing the above process the results were executed successfully as follows

### WEB APPLICATION



MOBILE APPLICATION:  
FRONT PAGE



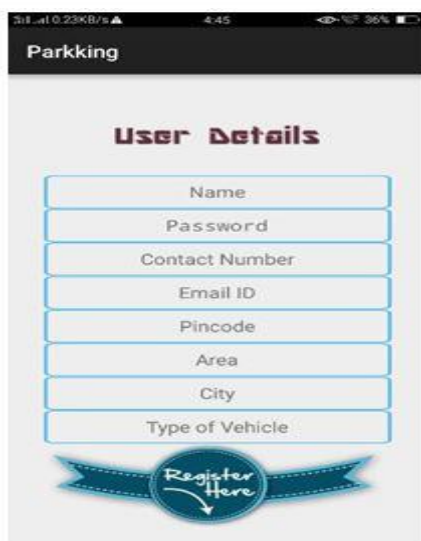
VIEW AVAILABILITY IN GOOGLE MAP



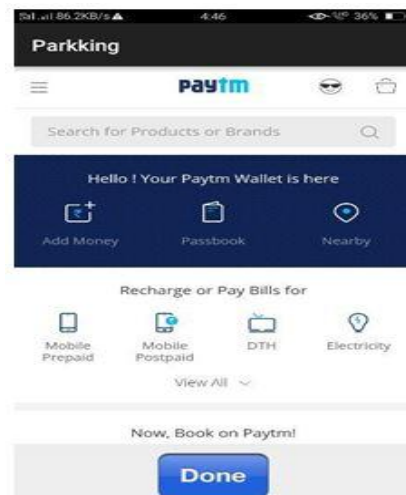
LANDLORDS LOGIN



USER LOGIN



MAKING PAYMENT



#### VIII. FUTURE ENHANCEMENT

As the software has been developed for a single port it can further be developed for providing service to all nearby multiple ports to divert the traffic and all to reduce the time complexity and the port premises becomes eco-friendly.

#### IX. CONCLUSION

The main objective of our project is to provide the users a hassle free parking system and also use the unused space that lies around us. It aims at reducing the parking problems that has increased due to the raise in the production of vehicles recently. This will reduce the existing problems and give the users a better solution.

#### ACKNOWLEDGEMENT

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