ARTIFICIAL INTELLIGENCE-BASED SMART PARKING APPLICATION

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ABSTRACT:
The purpose of this paper is to create a reservation-based vehicle parking system to address the issue of wasting time looking for a parking spot in commercial parking lots. In this proposed system, parking spaces are reserved not only in shopping malls, theatres, and offices, but also in congested areas such as a local market or a bus stop. This is accomplished by utilising waste land surrounding busy areas and the use of houses with enough parking space for a vehicle. The user can reserve a time slot prior to his journey, and he will be notified on the scheduled date. When a user wants to book a slot, a real-time visual appears. He will be aware of the booked and vacant slots. Landowners or house owners who want to rent out their land can also easily register using the application. As a result, users can simply reserve a slot using our application.
KEYWORDS: Android Application, Smart Parking System.

INTRODUCTION

Drivers face numerous challenges and frustrations when looking for street parking in congested urban areas. It has been demonstrated that vehicles cruising for parking account for more than 40% of total traffic volume in urban areas. With only a few streets blocked, a long line of cruising vehicles can cause severe congestion. Finding a vacant car parking space has become increasingly difficult and time consuming in recent years due to the rapid proliferation of vehicle availability and usage. As a result, a number of practical conflicts arise. Parking issues are becoming more prevalent and growing at an alarming rate in every major city. The use of Android technology in conjunction with recent advances in wireless applications could be the key to solving the problem of emerging parking.

The main idea behind the parking application is to help the user search for an area where he wants to park and see if parking is available in that area as well as the number of available slots. If a slot in the desired area is available some hours before his expected arrival, the user can pre-book it. The user can search for and reserve a parking space using the Android application. Paytym is used to provide payment services. We also use unused land and available empty space to create a parking lot, thereby benefiting the landowners as well. Thus, the application proposed in this paper makes the user's life easier by saving 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

I. RELATEDWORK

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

EXISTINGSYSTEM

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 BeParked.
- Many Vehicles Are Parked On The Road Which Causes UnwantedTraffic.
- There Is No Security Assured For YourVehicle.

PROPOSEDSYSTEM

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 convinence.

SYSTEMDESIGN

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

ARCHITECTURE DIAGRAM

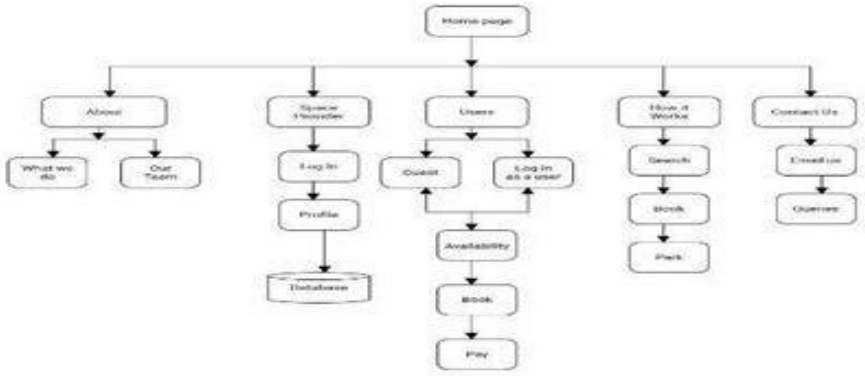


Fig 1.1 System Architecture for Smart Parking System

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 Webpage.

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 SQLdatabase.

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 stylesheets.

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 HypertextPreprocessor.

II. 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 developmentonly.SYSTEMIMPLEMENTATION MODULEDESCRIPTION

1. LANDLORD LOGINCREATION

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 INMAP

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 themap.

3. USER LOGINCREATION

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 MAKINGPAYMENT

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 limitverification.

III. RESULTS

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

WEB APPLICATION

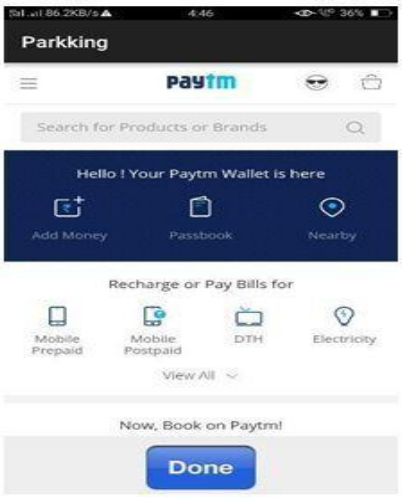
MOBILE APPLICATION: FRONT PAGE

LANDLORDS LOGIN

IEW AVAILABILITY IN GOOGLE MAP

USER LOGIN

MAKING PAYMENT



FUTUREENHANCEMENT

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.

IV. CONCLUSION

The main goal of our project is to provide users with a hassle-free parking system while also making use of the unused space around us. It aims to alleviate the parking issues that have arisen as a result of the recent increase in vehicle production. This will alleviate existing issues and provide users with a better solution.

ACKNOWLEDGEMENT

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