International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 07 Issue: 04 | April - 2023 Impact Factor: 8.176 ISSN: 2582-3930

Smart Parking Booking System

Dept. of Computer , Sir Visvesvaraya Institute of Technology
A/p .:Chincholi, Tal.:Sinnar,Dist.:Nashik,Maharastra,India-422102.

Mr.Devidas Thosar
Assistant *Professor*
devidas.thosar@pravra.in
Department *of Computer engineering*

Nikita Gawali
Nikitagawali77@gmail.com
Department of computer engineering

Pooja Bhopi
poojabhopi16@gmail.com
Department of computer engineering

Prerana Sanap
Preranasanap94@gmail.com
Department of computer engineering

Dipti Gosavi
diptigosavi2000@gmail.com
Department of computer engineering

Abstract -. The project is a smart parking booking system that provides city user an easy way of reserving a parking space online using web portal. It overcomes the problem of finding a parking space in universities/institute areas that unnecessary consumes time. Hence, this project offers a web application-based reservation system where user can view various parking spaces and select nearby or specific area of their choice to view whether space is available or not. If the booking space is available, then user can book it for specific time slot. The booked space will be marked and will not be available for anyone else for the specified time. This system provides an additional feature of cancelling the bookings. User can cancel their reserved space anytime. user can also view previous parking booking details using the web portal.

Key Words: Smart parking, Smart city, pollution free, IOT, Child Safety, GPS, GSM, Smart Band, Location.

INTRODUCTION

The role of parking spaces in the transportation system is vital. Every vehicle making a trip needs a parking space at its origin and destination regardless of the parameters defining the trip. Various systems of managing and controlling parking have been applied since the beginning of the 19th century worldwide. The hectic schedule of the parking and their space is really irritable at all the time especially in commercial areas.[1] The one of the main problem is that, there are plenty of increment in the motor field but not in parking space as it should be. It is highly needed to maintain and upgrade those all things, which are widely, use in our personal and professional life. The Parking system is very much annoying at this time but the smart is defined as the eco-friendly as well as perfectly digital city in all the aspects.[2]

The report is all about the smart city and smart parking system with the time saving facilities and better safe and secure environment using certified data by Intelligent Transport System and latest inventions. This is really necessary to open each and everything about the new smart city which will be our next life. So, this report has each and every thing in very clear way.[3] The system of smart parking and smart city is reliable up to at what point is showing in this report with the App-work and infrastructure work together. So, the smart Parking system is really just like the revolution in the world of parking, which is able to save time and make each and everything reliable. The one of the best thing is that, it is the most convincible way in this high population. The main thing is that, we can use our all kinds of gadgets to protect our vehicle, make our life reliable and safe as well as to make the schedule time saving. [4]The one of the best thing is that, it is really amazing to have each and everything quick and fast without making any trouble. The term smart city is widely using now

a days as it is becoming the basic needs for the entire world. The life at this time is truly fast and furious at all the time. In this fast and furious era, we need each and everything reliable with the time saving and better result. The reliable transportation without any problem is the basic needs which can't be fulfill without making the smart cities. It is very important to make each and everything according to eco-friendly system and sustainable programs of the earth.[5]

LITURATURE SURVEY

This paper Real Time working and implementation is what the citizen's and the government is aiming for. It is said the most commutators spend more time in finding spaces for parking than driving around with the odd probability of actually getting the parking spaces for themselves. The idea here is to implement Smart Parking Solution. Smart Parking devices will be introduced to various parking spots that will be connected to the cloud and provide Real-time updated from the UHF installed sensors for available parking spaces for the user.[1]The Proposed system is an "Originality" because the idea making smart city solutions have not yet been implemented in the crowded areas or area where getting parking spaces is difficult. A User-friendly app is introduced for the operations for User from finding a parking space to booking space confirmed. The circuitry used in the whole operation is easily built and cost-effective for the organizations to implement it.[2]

The paper proposed outline a methodology for finding a solution for parking crisis in congested areas with constrains. The methodology was applied to Isa Town campus of University of Bahrain. The campus has experienced increasing parking users with demands equivalent to 8750 vehicle-hours besides limited parking spaces. In addition, the University of Bahrain and Bahrain Polytechnic share same campus and facilities whereas the limited parking area (1356 parks) hardly meets the requirements of one university.[3] Therefore, many students (22.9%) resort to parking outside. The study acquired the required information, by survey, from parking users (students) and parking data from the study area. Several equations of parking studies (demands, supply and others) were applied to the information.[4] The study adopted one of smart car parking systems (vertical rotary smart car parking). It will be providing the parking area with necessary parks through establishment of number of rotary devices (13 rotors from the most appropriate types) in different appropriate locations. The methodology adopted in this study can be adapted to any environment for solving parking management crisis.[6]

AIMS & OBJECTIVES

1. Users can get details about parking areas for particular locations.
2. It saves user time in search of parking space available in such a long parking area.
3. The system provides a view of the parking spaces.
4. It excludes the need of human efforts for managing parking spaces.

EXISTING SYSTEM

The project is a savvy stopping booking framework that gives city client a simple approach to holding a parking spot internet utilizing online interface. It conquers the issue of finding a parking spot in colleges/organization regions that superfluous consumes time. Consequently, this venture offers a web application-based reservation framework where client can see different parking spots and select close by or explicit region of their decision to see regardless of whether space is accessible. On the off chance that the booking space is accessible, client can book it for explicit schedule opening. The booked space will be checked and won't be accessible for any other person for the predefined time. This framework gives an extra component of dropping the appointments. Client can drop their saved space whenever. client can likewise see past stopping booking subtleties utilizing the online interface.

MODULES

1) PARKING SLOT

A parking space, parking place or parking spot is a location that is designated for parking, either paved or unpaved. It can be in a parking garage, in a parking lot or on a city street. The space may be delineated by road surface markings.

2) BOOKING

Parking management software or smart parking systems Are central reservation systems designed to secure and increase online booking for parking operators and businesses with car parks Parking management software or smart parking systems.

3) PAYMENT

Parking payment systems with parking lot gates allow you to collect payment when a transient parker is entering or leaving your parking lot. At any given time, there is only one fee that is charged.

4) SECURITY

Car park security is exactly what it says on the tin, it is the methods we use to keep an area where vehicles are parked secure There is a huge variety of systems and technologies that can be used to secure a car park and all of them are encompassed by an area of security called vehicle access control.

5) FUEL & CNG SYSTEM

To get started, The public would be able to log in to the system via fuel.gov.lk to search for the availability below: Location (Province, District, City) Fuel type (P92, P05, D, SD and Kerosene).

SYSTEM ARCHITECTURE

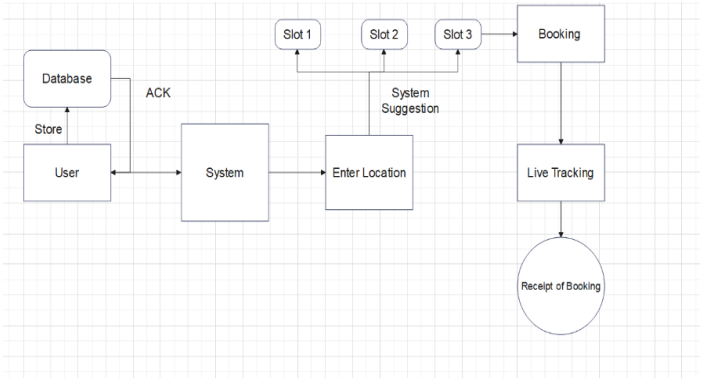


Fig-1: Architecture Diagram Of Smart Parking System

Mathematical Model:

- System Description:

S = (I,O,F)

Where,

S: System.

I = {UL, UPS, UT} are set of Inputs

Where,

- UL: User Login
- UPS: User Parking Slot
- UT: User Tracking

F = {A, SP} are set of Function

Where,

A: Authentication

SP: Smart Parking

O = {N,T,B} are set of Output

Where,

N: Notification

T: Tracking

B: Booking

Success Conditions:

Proper database, Selecting valid data

APPLICATION:

- Malls
- Organization / Companies
- Schools / Collages
- Smart City

ADVANTAGES:

- Cost effective
- Environment Friendly
- Highly available
- Highly scalable

DISADVANTAGES:

- It requires large database.
- It requires an internet connection.

FUNCTIONAL & NON-FUNCTIONAL REQUIREMENTS

Functional requirements: may involve calculations, technical details, data manipulation and processing and other specific functionality that define what a system is supposed to accomplish. Behavioral requirements describe all the cases where the system uses the functional requirements; these are captured in use cases.

Nonfunctional Requirements: (NFRs) define system attributes such as security, reliability, performance, maintainability, scalability, and usability. They serve as constraints or restrictions on the design of the system across the different backlogs.

Functional requirements

- Registration
- User Login
- Creation of database: Users Mandatory Information

Design Constraints:

1. Database
2. Operating System
3. Web-Based Non-functional Requirements

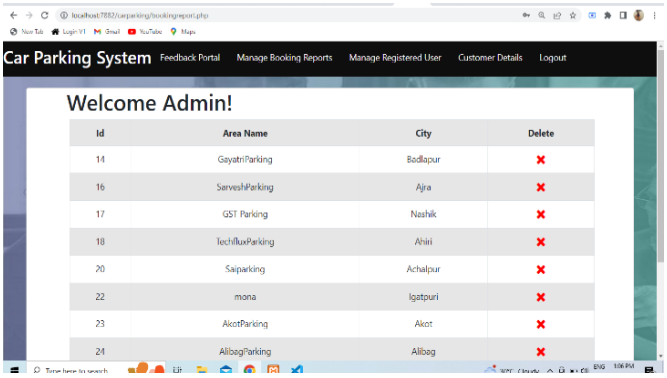
Security:

1. User Identification
2. Login ID
3. Modification

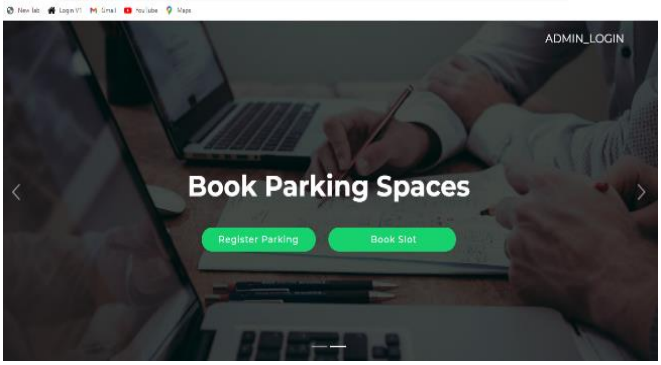
Performance Requirement:

1. Response Time
2. Capacity
3. User Interface
4. Maintainability
5. Availability

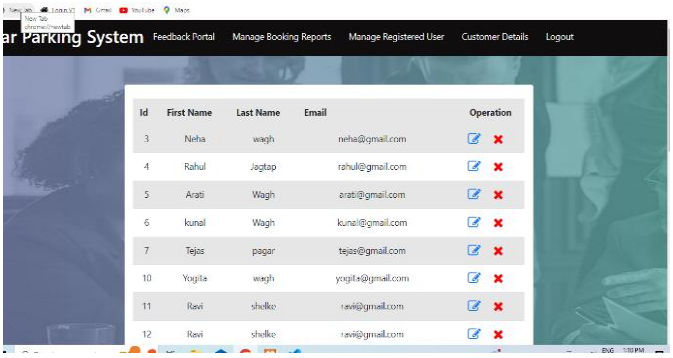
IMPLEMENTATION



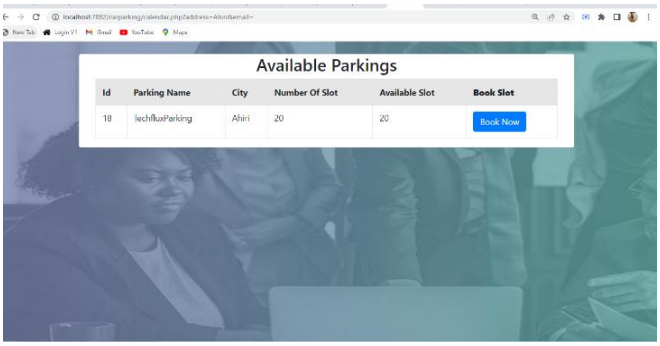
ADMIN PAGE



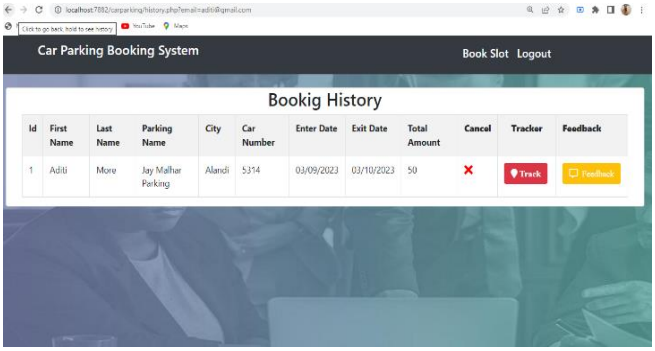
INDEX FILE / HOMEPAGE



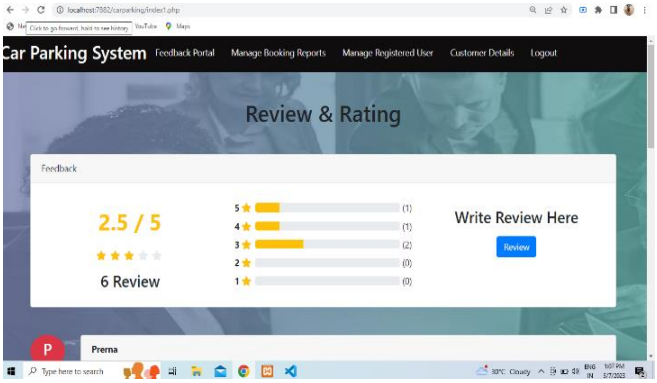
REGISTER USERS



AVAILABLE PARKING'S



HISTORY



FEEDBACK FORM

COMPARATIVE ANALYSIS

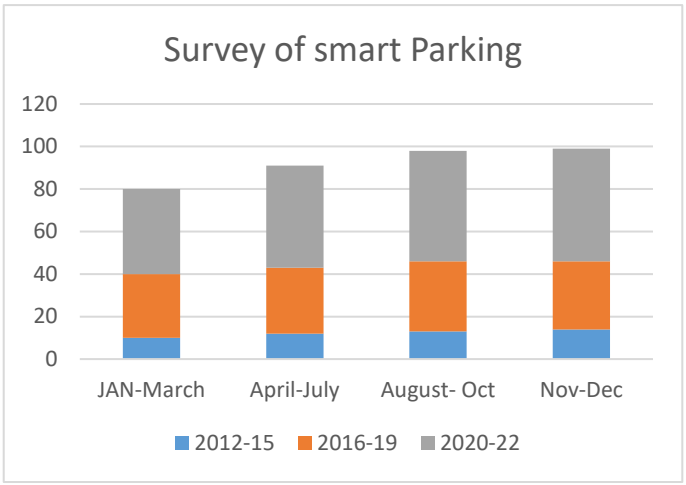


Fig . Survey of smart Parking

CONCLUSION

The one of the basic needs to make the smart city is smart parking as the traffic is increasing at all the time with the rate of 25-40% worldwide. The one of the basic thing which is cleared in this paper is that, Park ON app and the management of the smart parking is the key points. This is really amazing to have these facilities without any problem in the environment as the entire research shows that, everything is eco-friendly. The ICT system is rationally follows in the entire research.

REFERENCES

1. Ashwin Sayeeraman and P. S. Ramesh, "ZigBee and GSM based secure vehicle parking management and reservation system", Journal of Theoretical and Applied Information Technology, vol. 37, no. 2, 31st March 2012.
2. Jihoon Yang, Jorge Portilla and Teresa Riesgo, Smart Parking Service based on Wireless Sensor Networks., IEEE, 2012.
3. Nikita Gawali , Pooja Bhopi , Prerana Sanap , Dipti Gosavi "Online Car Parking Booking System", International Journal of scientific Research in Engineering and

Management(IJSREM) vol.06, no.3,11 Nov 2022.

4. Manjusha Patil and Vasant N. Bhonge, "Wireless Sensor Network and RFID for Smart Parking System", International Journal of Emerging Technology and Advanced Engineering Website, vol. 3, no. 4, April 2013, ISSN ISSN 2250-2459.
5. Yanfeng Geng and Christos G. Cassandras, "New Smart Parking System Based on Resource Allocation and Reservations", IEEE Transactions on intelligent transportation systems, vol. 14, no. 3, September 2013.
6. Hilal Al-Kharusi and Ibrahim Al-Bahadly, "Intelligent Parking Management System Based on Image Processing", World Journal of Engineering and Technology, vol. 2, pp. 55-67, 2014.
7. Harmeet Singh, Chetan Anand, Vinay Kumar and Ankit Sharma, "Automated Parking System with Bluetooth Access", International Journal of Engineering and Computer Science, vol. 3, no. 5, pp. 5773-5775, May 2014, ISSN ISSN: 2319-7242.
8. M. M. Rashid, A. Musa, M. Ataur Rahman, N. Farahana and A. Farhana, "Automatic Parking Management System and Parking Fee Collection Based on Number Plate Recognition", International Journal of Machine Learning and Computing, vol. 2, no. 2, 2014.