

Mobile Application - Parking Lot Management

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Abstract - Parking lot management is an application service provided to the people to make their vehicle have safe and secure parking in rush areas. In this application, people are able to select the location where they need the parking slot. Once the location is selected, a list of parkings will be displayed. So, they are able to book their particular slot in the specific parking lot. This is mainly developed to make our job of finding and parking vehicles in our city easier. People are able to book their parking in a particular slot and will be able to park the vehicle in that particular slot. So, the admin will be handling those slots details and will be updating according to it. So, there will be certain slots which are allocated for this particular parking. Customers need to scan QR for check in and out. So, based on that, the details of the slot will be stored. People can also make online payment and also if required, they are able to cancel it. This project was developed in the platform of Android Studio and for database SQLite is used. For frontend, xml and java code are being used to develop its functionality and interconnect to the database. So, during weekends and particularly in festivals or function times, they can reduce their burden to park vehicles in the particular places. In this current implementation, we are able to pay online with the help of credit/debit card and also using UPI pins. This implementation will reduce the work of the management to notice when the car arrived and departed. So, management is able to easily track the details of the vehicles and also note from when the vehicle was there in that particular slot.

1. INTRODUCTION

In our country, the usage of vehicles is increasing day by day and the parking of such things is crucial one, such as malls, heaters, hospitals etc. The parking of vehicles one has to look for the lane and the slots for a long time and also this includes a large manpower and investment. So we have made it simple managing the parking areas likewise collecting the data of the incoming vehicle and outgoing too. The main objective of the parking management system is to

show the available slots which the customer want to park and make time consumption. It will track the entry and exit of the automobiles, maintain the list of slots occupied and yet to be occupied, determine the fare for the customer if they stay for excess of time.

2. LITERATURE SURVEY

Most of the parking systems are designed with IOT based projects to make time consumption. They are making it more efficient and also helping our generation to improve to the next stage of our industrial technology. As per survey, Current parking systems need a lot of staff to administer, and users must seek for parking spaces floor by floor. Such traditional technologies consume more energy, as well as the user's valuable time. One of the ideas describes how to use a Smart Park to utilise Management Energy by constructing a setting like a multi-story office parking lot. They suggest leveraging cutting-edge Internet of Things (IoT) technologies, such as sensors and controllers, to create a user-friendly autonomous parking system. Unoccupied car parking places are marked by leds, and clients are directed to an empty parking space, reducing the need to look for a parking spot.

The occupied parking spaces are virtually saved to the cloud, where the central system can access them and send incoming automobiles to open slots. They provide light illuminance to assist save energy while also automatically lighting up the parking spot for the user when in the parking place. As a result, the applications they created used a GSM module to transmit SMS to a specific user. The Arduino sends the signal to the servo motor, along with a GSM module that provides the user with additional instructions and notifications. The RFID card assigned to the registered user is scanned by the reader module when the user enters the parking area, ensuring the security of the

user's identification. This allows the user to acquire information about available parking spaces as well as receive SMS notifications to their registered mobile number. It is divided into three sections, the first of which is the parking area, which includes Arduino devices as well as an IR sensor.

These devices allow the user to interact with the parking lot. The cloud web services, which function as a mediator between the user and the auto parking area, are discussed in the second half of the article. The cloud is updated in real time based on parking availability. Some The system is a fully functional and digitally managed parking lot management system that employs the utilisation of various digital circuitry and micro computers. The design has several stages, starting with the main unit and progressing to other components in order to reach full automation. An oncoming car will communicate wirelessly with the main unit linked to the Parking Facility Gate (through the driver). The main unit will validate the communicated access information and provide control to the gate mechanism drivers after verification, which will then drive the proper gate control (either exit or entry unit).

The system then monitors the driver's activity, and when the driver travels a certain distance within the facility to pass control to the space allocation and management unit, the system spins the gate mechanism back (closes the gate). The purpose of the unit after this is to monitor the activity of the car in the parking lot, allocate the parking space appropriately, monitor the compliance and notify the (occupied) overall control center of the parking space. It is to manage the parking space available in the parking lot. It has a display interface for communicating with facility users. There is also a staff dispatch center to monitor activities in the parking lot.

You will be notified of all activities, available locations and can shut down the entire system or turn it on from the Control Center. The main goal of this project is full automation, which will soon be applied to divide large plants with different access restrictions, government parking lots, university campuses, faculty and staff parking lots and student parking lots, etc. increase. So this is the literature we have consistently experienced.

These ideas will be providing our job to make it smarter and efficient. So with this survey, we analyze

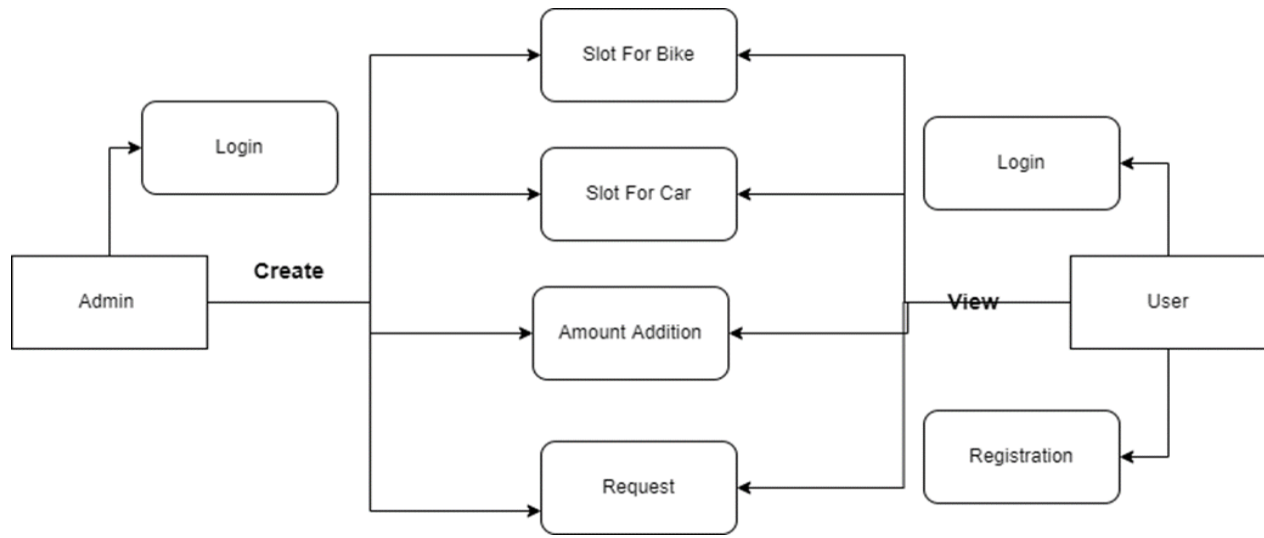
that there should be some more inner efficient portion to develop a path for this way to develop according to it. So, as we recognized these projects will be more costly, difficult to initiate, and also will take more cost to maintain. So, to overcome all those things our plan is to implement an application where a person is able to handle the flow. Users will be creating their account in a particular application and begin their way to explore it. They will be selecting the area. So, in that particular area we will be showing them what are the available parkings in that area.

Once any of the parking gets filled, it will be notified before booking by showing its availability. Once after the booking get confirmed and every payment process was done, when the user enters the parking, they need to scan the barcode during enter for the parking and also while exiting. This application provides a map of where the parking facilities are relative. This application will help authorized user to insert, delete, update or view the various records related to see the parking spaces, give request for space to park. The Vehicle Intime and Out time will show through the barcode scanning. This was designed for both two wheeler and four wheeler vehicle. This application is developed for online users for parking their vehicle to get acknowledgement from the administrator using this application entitled "PARKING BOOKING SYSTEM".

The park system is an important feature in many aspects of our lives. Parking services in homes, offices, malls, hospitals and other public places are strategic enough to control any amount of traffic at any given time. With the development of technology, integrated parking equipment, management, and software have been developed to provide the best solution for parking problems. Authorities can easily upgrade the parking system to regulate free-flowing vehicles throughout the day. Controlling the entry and exit of vehicles in the parking lot is very convenient, comfortable and flexible.

3. SYSTEM ARCHITECTURE

For this application, it was developed using xml, java for frontend portion and its functionalities, and SQLite database is used. It was developed in Android Studio and Java Studio software.



4.RESULTS

The customer will let to know the near parking areas and the empty slots too by using this application, the user can book the slot after the payment if the slot was booked the notification message will send to the customer, the in time and out time can be extended by the user. This is how the system works.

5.FUTURE SCOPE

By implementing this technology, most of the parking problems like finding slots and manpower will be reduced. It can be further developed by the advanced technology to control the waste number of parking, in the future case almost all the cars will be developed with the AI, so we can effectively get the info from the car and guide them to park easily. There are many possibilities to come with fully automated parking even without the drivers.

6.CONCLUSION

This system minimizes the workload likewise issuing the receipt and collecting the customer details and having to wait for the payment until they have to leave. This project proposes a different way of maintaining the parking system. It provides an easy and effective way of collecting customer details and allotting a slot whatever they want according to the time. It can be implemented in all areas with low cost.

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