

Online Parking System

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Abstract: Increasing numbers of vehicles is the main cause of traffic congestion and is also an alarming problem at a global scale and it has been growing rapidly. The searching of parking burns a lot of barrels of the world's oil every day. Car parking problem is a major contributor and has been, still a major problem with increasing vehicle size in the luxurious segment and confined parking spaces in urban cities. It is of utmost importance to modify all the material which is mostly use for personal and commercial purposes. At certain instant of time people are getting annoyed of the present parking system so a new smart technology is introduced which proves to be more economical and ecofriendly in all aspects. This report is presented to highlight the working performance of the smart parking system and the implementation of Intelligent Transport System. This report is also presented to analyze the reliability of the smart parking system.

Keywords: online parking, smart city, Prevention of car theft

1. Introduction

In transportation system parking space plays the vital role. Each and Every vehicle making a trip is in need of a parking space at the origin as well as at the destination, irrespective of how long the trip goes. There are a numerous systems implemented for managing and controlling the parking scenario.

The problem in the parking system is the rapid increase in the motor field but not in the parking spaces. This problem is overcome by the use of smart technologies.

The Smart Parking system is the biggest change in the world of parking whose responsibility is to make parking system reliable and also helps in saving time and space. Also this technology is the most convenient when considering high population. Also by using this technology we can use all the different kinds of gadgets for safety, protection and scheduling of the vehicles.

The term smart city is broadly utilizing now a days as it is turning into the fundamental requirements for the whole world. In this quick and enraged time, we require each and everything dependable with the efficient and better outcome. The solid transportation with no issue is the essential needs which can't be satisfy without making the smart urban communities.



Figure 1: Smart City requirements

One of the important thing that is to be considered before designing any system is to make such system Eco-friendly and sustainable. The energy sources that we are using are not completely reliable and Eco-friendly as all these sources are polluting the environment. The land and water pollution is due to various schemes like garbage management, pilgrims and deforestations etc. The concept of smart city proves to be revolutionary for maintaining and managing each and everything rapidly. Smart city is used to discuss the implementation of modern technology in present urban life. This not only includes information and communication technologies (ICT) but also, modern transport technologies. Logistics as well as new transport systems as “smart” systems that improve the urban traffic and the inhabitants’ mobility [1]. However various other aspects referring to life in a city are mentioned in connection to the term smart city like security/safe, green, efficient & sustainable, energy etc, as shown in fig 1. Mobility or transportation is one of the important needs of the Smart city.

For a smart and efficient infrastructure smart parking system are used. In this paper, a new system app, “Park It” is based on the use of smart phones, sensors monitoring techniques with a sensor’s camera to take photos to show the occupancy of cars parks. By the image, particular vacant space can be known and used to guide a driver to a car park. By implementing this system, the utilization of parking spaces will increase. this system uses the vacant parking space for parking purpose and renew the space when vacated by the user when the user leaves the parking area, and transfer the billing data to the user with the help of communication module. It also plays an important role in finding the best possible path as per the present location of the user.

Smart parking technology is one of the efficient way to overcome the traffic problem and parking issues in city roads and ways. This technology proves to be more reliable and economical.

1) Merits of the smart parking

- This system is much safer and secure because of the faster response and digital system implementation.

- The reliability of this type of system is much higher than the traditional parking systems.
- The area requirement of smart parking system is lesser as compared to the traditional system.
- The utilization of GPS technology makes the smart parking system more accurate and also helps in allocating the vacant spaces.
- Due to the centralization of power, a connection is always established between the owner and the staff.

2) Module for the Parking Management App

Different modules are implemented in parking management app. The modules are as discussed below with the help of

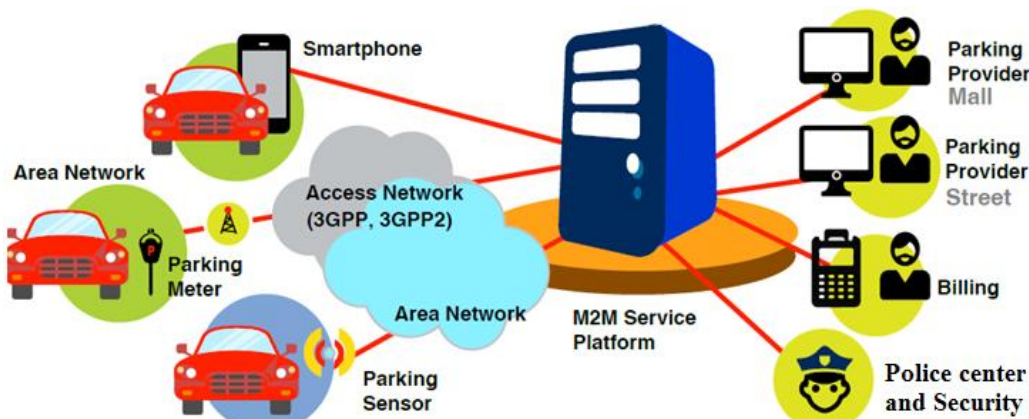


Figure 2: Using Procedure of “Park It”, android app

c) Function Module

This is the main module of the smart parking as it has the ability to cover the all going things in the parking. The main responsibility of the function module is to look-after the entire database system which is going on in the parking like communication, reserve parking and ongoing parking etc.

d) Parking space controller module

This module covers all the hardware communication and the sensors as it is necessary to know about the current status of parking machinery and system.

2. Methodology

The smart parking technology is the key solution to many problems regarding parking space, parking spots, long and irritable cues and much more. This is the only solution that handle cue system into professional way and solve the problem without any disturbance and interruption. A database system is used in the smart parking to increase the reliability of the system at all the time. Various apps like **Park It** system are always connected with the parking system in a best possible way.

1) Authorization for the “Park It” app

- Only the Authorized person has the right to get the reservation slot for parking with a confirmation number.
- A grace period is allotted for the reservation which has the time limit of 15 minutes. The reservation will be cancelled if the customer is coming after the allotted grace period.

figures.

a) User Interface Module

This module is responsible for establishing a bond between the user and the parking authority which is the main reason this module is highly recommended.

b) Communication Module

This module is responsible for making all the SMS services that are required for conveying the information regarding the parking schedule between the user and the parking system.

There is no relaxation after the grace period even for that customer who demanded the reservation.

- One customer can avail more than one reservation.
- There will be an increase in rate if any customer increase the time slot reserved for him and the billing will be send to that customer automatically with the help of communication module.
- Complete automation is done for car detecting and information is send to the customer through messages.
- At the final level, the user will receive a final printout showing all the information regarding the timing and the user data.

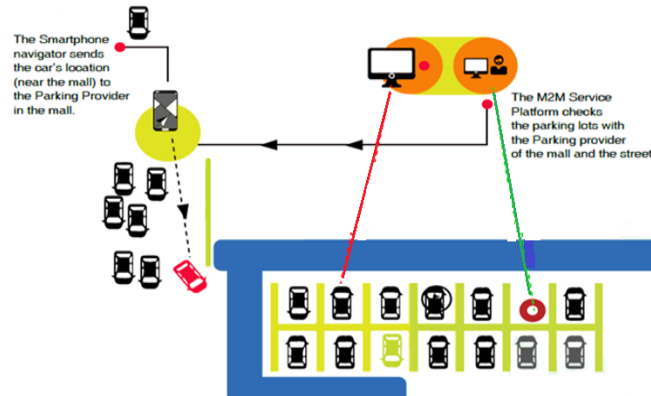


Figure 3: Searching of parking through online system

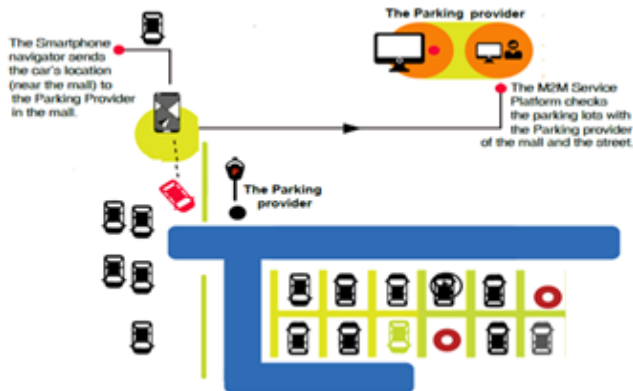


Figure 4: Service provider check the availability of Parking spaces

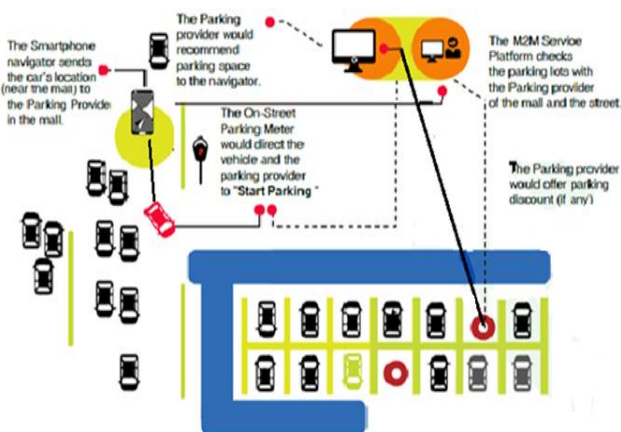


Figure 5: Book parking space by choosing time slot

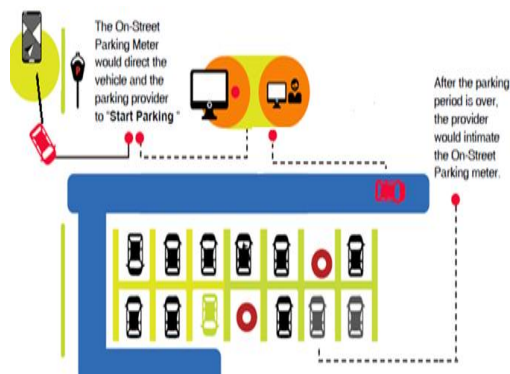


Figure 6: Final stage of the parking service

3. Conclusion

The basic necessity of a smart city is smart parking as the rate of traffic is increasing day by day with a range of approx. The one of the basic needs to make the smart city is smart parking as the traffic is increasing at all 20-40% globally. The key point considered in this report is the management of traffic by using **Park It** app and smart parking. With the help of this report, it is concluded that both the technologies **Park It** app and smart parking proves to be Economical and Eco-friendly by solving the issues related to traffic and parking.

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