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QR CODE IMPLEMENTATION IN CAR PARKING LOCATOR

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Abstract- In this paper, implement a system that enables drivers to seek out parking slots online and reserve them. The drivers use this technique on their personal devices. It eliminates the drawbacks of existing systems just like the use of RFID, LED, and IR sensors. In this system, drivers can reserve the parking slot in a particular zone, checking the free slots and reserving them as per their requirements of the vehicle. Further, the QR code is generated that encodes the distinctive details of the user. QR code is used for encryption and to ease the method of authentication. Thus by using this technique it may be very useful to cut back the load on the driver as well as to reduce traffic on road and may be helpful to park the vehicle within the peak hours.

Keywords-Smart Parking System (SPS), Radio Frequency Identification (RFID), Infrared Sensors (IR), GSM (Global System for Mobile communication), Infrared (IR) light, NarrowBand-Internet of Things (NB-IoT)

I. INTRODUCTION

Significant urban areas from one side of the planet to the other are dealing with another issue these days, the absence of sufficient parking space. The absolute number of engine vehicles is more than the total number of heads per family. The proposed system will perform tasks like authorization, slot updating and billing. This project addresses the matter of parking issues faced by people. In this project, developed a QR code-based parking system that can be used for offices, malls and residential societies.

II. PROBLEM STATEMENT

Some of the existing systems used RFID technology. Thus every car has to be provided with RFID tags and RFID readers in parking spaces and other existing systems that use GSM and INFRARED technology. All these appliances become very expensive. Moreover, our system depends on the QR code which is an alternative to the existing system which is based on RFID tags. QR code reduces the data space in the database; it also reduces the cost as compared to other existing systems.

III. LITERATURE SURVEY

We will see several smart parking systems which help drivers to park their vehicles but there are some disadvantages in that system that are overcome in this paper. This paper focuses on designing a new smart parking system that assists drivers to find vacant parking spaces in the region they are going.

In [1] this research paper Ankita Gupta, Ankit Srivastava, Rohit Anand, Paras Chawla showed the design and implementation of an android application, which is a parking system, based on Reservations that enables drivers to simply find and reserve the vacant parking slots in a specific zone with the assistance of the web with the slot allocation bank account and performs automated billing Using RFID technology billing process is done. RFID's main use is primarily for tracking, this technology has quickly created an extreme number of areas including easy gas payment and credit cards. RFID tags are used for automated billing processes. Disadvantages are Hardware failure might occur, high-priced because of RFID and IR sensors, and complicated circuits.

In[2] this research paper, M.praveen, V.harini made IOT based parking system where they find the car or allot parking slots to cars. This whole system needs a number of sensors to connect each parking slot and an NB IOT module to control the sensors. So this makes the system costly and a bit complex to do.

IV. PROPOSED SYSTEM

In this section, we represent the design planned for a QR code-based smart parking system, that implements a reservation service and provides a QR code Fig.1

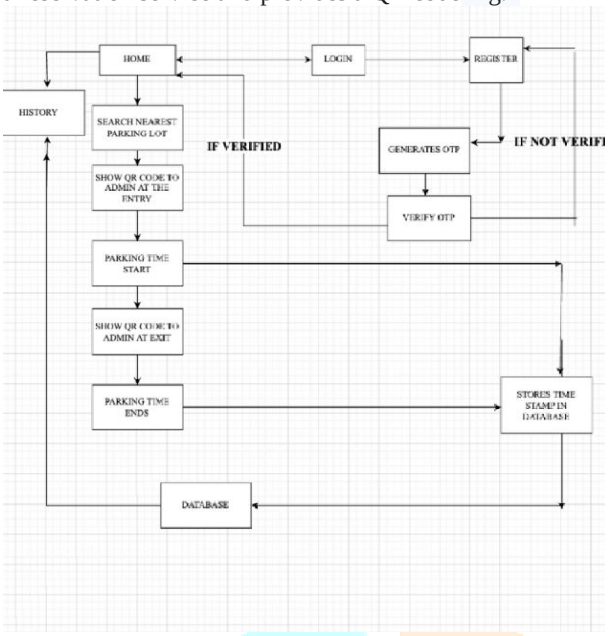

Fig. 1. Block diagram of the proposed system

i. System Architecture and Design

The app will show the parking slot as per the region selected with its price, type and time. The user can receive the data as per the choice of the parking slot and region for a particular amount of time. The QR codes are generated by SPS in which the identity of the user is encrypted which can be used for authentication. After every user booking, the info is updated that shows that slots are occupied and that is empty. The zoner identifies each user by the randomly generated unique QR code, zoner directly scans the QR code by QR code scanner and verifies the details and authenticated the user. Due to this, the time consumption is less and there is no need for communication between the user and zoner making authentication fast and convenient.

ii. QR code (Quick Response Code)

In QR Code (Quick Response Code) was developed by Denso Corporation in 1994. There are 40 versions of QR Code, four levels of error correction, and the maximum symbol size (the highest version) can encode 7089 numeric data or 4296 alphanumeric data. The highest level of error correction allows the recovery of 30% of the symbol code words.

V. FUTURE SCOPE

For making this system more user friendly we can add the option where people can rent their parking site. As there are many residential areas that don't provide safe and secure parking spaces.

VI. CONCLUSION

Thus in this paper, a new system of Smart Parking is developed to optimize parking management of the vehicle in the city. Implemented parking reservation techniques to balance the benefit of both the service providers and the requirements of the users. Moreover, it represented the detailed design, implementation and evaluation of the system and how it works. Hope that this may help to reduce the traffic on the road in cities and also helps the drivers to park their vehicle easily

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