



## **A Review on Smart Parking System Using IOT**

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### **ABSTRACT**

This project is an attempt to automate major Car Parking Systems processes, including availability checking of a parking slot through sensor signal output. A Smart Car Parking is mostly unavailable locally in all over India. Administrators, users, and government authorities face many difficulties due to a proper car parking system. In this project, solutions have been provided to the problems encountered during parking a vehicle at commercial parking lots. The adoption of a smart parking management system benefits in the reduction of this issue. The Parking Reservation System is an automatic that provides an ID-based parking slot using a web application or web browser interface. In web applications, users have to enter their car number so that camera can authenticate the real car when the car arrives at the parking place. After booking a slot, users have to come to a parking place within a given time (eg-10min). If they do not come in that specific time after that slot will be available for others. This method is intended for Multi-Dwelling Units, offices, schools, colleges, malls, movie theatres, airlines, metro stations, and other locations where vehicles must be parked in a systematic manner. Vehicle will use the unique authentic code while entering in parking area the Radio-frequency identification (RFID) number authenticates and allow tracking of vehicles entering and exiting the parking areas. It helps the system know whether the Vehicle is registered to allocate parking spaces to incoming customers.

**Key words:** Interconnected sensor, Internet of Things, RFID, Reservation, IR Sensor, Smart Parking

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### **INTRODUCTION**

The Process of developing a Modern City is coming into a reality with the growth of the Internet of Things. Smart cities must address two critical issues: vehicle parking infrastructure and traffic management systems. Trying to find an usable parking space in today's modern cities is sometimes a challenging task for drivers, and it seems to get worse turn out to be tougher with an ever-increasing range of non-public vehicle users. This situation can be considered as an opportunity for smart Cities to enhance their parking ability efficiency, hence Reducing looking times, traffic congestion, and street accidents. If drivers are informed of the availability of parking facilities, parking and traffic congestion concerns can be reduced.

The development of new Internet of Things functions is being aided by recent improvements in low-cost, low-power embedded systems. Followed many modern cities has chosen to adopt a range of Iot tracking in and around their cities as sensor technology has improved. The number of new parking system ideas is on the rise, according to a survey done by the International Parking Institute. Citizens report that certain parking facilities provide real-time information about

available parking spaces. Such systems necessitate the deployment of efficient sensors in parking areas to monitor occupancy and the processing of statistics in a timely manner.

#### LITERATURE SURVEY

**Can Biyik “Smart Parking Systems Reviewing the Literature, Architecture and Ways Forward” [1]** The smart parking system can be recognised as a means of resolving parking problem both now and in the upcoming years. Moreover, IoT-enabled approaches must be given specific attention in order to make sure and they're at the top of the car parking system design priority list. As a result, there are a variety of mechanisms to upgrading parking lot architecture and adding smart functionality. There are those that are simple to install and those that are quite difficult. Irrespective, the implementation must enable drivers to access real-time cars parked as well as usable parking areas digitally. The parking situation in the neighbourhood must also be completely addressed—in an efficient, real-time, and cost-effective manner.

**Hardik Tanti “Smart Parking System based on IOT” [1]** The Smart Parking system model includes four parking slots and one entry and exit gate. If any sensor fails to function properly in the future, an extra lot number 7 is kept disconnected for future maintenance. Each parking lot is equipped with sensors are used to detect each and every countable item that goes through the range. Every one of the detectors are wired together and powered by the Arduino Uno kit. The Arduino Uno kit is connected to the ESP8266 Micro Controller. ESP 8266 has sensor instructions that have been imported from the Arduino IDE, which is coding software. LoginActivity Description: The user will utilise his or her mobile phone number and password to log in. Activity of Registration With his or her credentials, the car user will register.

**Ms. Megha D Hegde “Review Paper on Smart Parking System” [2]** The issues that may arise while working with a smart parking system, along with the solutions, a suitable platform for all people has been described. Individuals who struggle with their daily routines will benefit from the introduction of a car parking system. The solution we propose delivers real-time information on parking space availability in a parking lot. Users can reserve a parking spot for themselves using our smartphone app. As a result, consumers can spend less time looking for parking. To book a parking space, the user uses the suggested system. The timer starts once he enters the slot. He must pay the fee for the period he left his car in the parking place once he exits the slot.

**Elakya R, Juhiseth, “Smart Parking System using IoT” [4]** There have been advancements made in the last few years to make the dream of a smart city a reality. The internet of things (IoT) and cloud technologies have opened up new possibilities for smart cities. Smart parking has long been a key component of implementation. The technology delivers process and parking spot information in real time. This paper increases the performance of users looking for an appropriate parking space by saving them time. It helps to alleviate the growing problem of traffic congestion in the future, users will be able to book a parking space from a remote location. GPS, reservation services, and a licence plate scanner may be added in the future.

**Aekarat Saeliw**Error! Reference source not found.Error! Reference source not found.Error! Reference source not found.Error! Reference source not found. **“Smart Car Parking Mobile Application based on RFID and IoT” [5]** According to the report, the major goal is to avoid crowding inside the parking area by establishing an efficient auto parking system and a user-friendly application. Normally, when visiting public venues such as Cinema Theater, market places, hospitals, function halls, offices, and retail malls, even when it's a paying facility including an attendant/security guard, seeking for an empty parking spot is unsettling. An automatic parking system is exhibited to demonstrate hazard-free parking. The system utilizes infrared transmitter-receiver pairs from anywhere share information the condition of vehicle occupancy to the Arduino Board and display the vacant slots on a display at the parking entrance so that the user is aware of the availability absence of parking space prior to entering. The implementation requires minimal human contact and delivers a flawless parking experience, saving the user a significant amount of time in parking his or her vehicle.

#### OBJECTIVE

1. Yet another aim of Advanced Parking is to shorten the duration and stress involved in finding a parking space. There are numerous environmental benefits to being able to precisely guide a driver to an open parking.it reduces CO2 emissions, noise and other pollutants. Smart Parking can be used in conjunction with Smart Climate to monitor pollution levels as well as parking space availability.

2. Ease Travelling all over city looking for parking slots can be aggravating, especially during rush hour. The inability of a customer to find a parking spot may mean a loss business or affect them to shop elsewhere. The ability to efficiently identify a space for just a customer or tourist reduces tension and improves overall experience. The convenience factor is especially important in spaces designated for handicapped drivers, public service vehicles, or emergency vehicles.
3. deep insights and data in real time. Smart Parking provides large data which can be used to spot patterns, peak-times, as well as other performance measures that could be used in predicting and providing information for a town authority, car park operator, or business. The data and detectors can be embedded into town monitoring systems or analyses using custom software.
4. Traffic has been reduced. Whenever a car owner clearly knows where they need to go, sitting idle and unnecessary driving are reduced, and traffic flows in congested areas are optimised.

### CONCLUSION

We described a wireless sensor network-based smart smart parking system. We investigated the needs of real-world parking management systems. We proposed the major system functionalities and built the system architecture based on the analysis. We also created a prototype system that used motes' crossbow goods to achieve the desired functions. The prototype system successfully fulfilled the criteria of a WSN-based smart car park management system, according to our evaluation.

This study proposes an IoT-based smart parking system to prevent overcrowding and random parking. And obstruction of traffic in the parking area as well as to search and wait for a parking space. The system design in this paper is made up of four layers. Application, Middleware, Networking, and sensor layer. The comparison of a regular parking system with a smart parking system employing IoT is highlighted in the research report. A framework for a smart parking system is also proposed in the article.

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