

# IMPLEMENTATION OF ADVANCE PARKING SYSTEM

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## **Abstract**

*Internet of Things (IOT) plays a vital role in connecting the surrounding environmental things to the network and makes it easy to access those un-internet things from any remote location. Updating with rising technology is unavoidable for people. And people normally face problems with parking vehicles in parking spaces in a town. This paper discuss about developing a Smart Parking System (SPS) in this study that allows the user to locate the nearest parking area and provides access to parking slots in that respective parking area. And it focuses primarily on reducing the time required to locate parking spaces and also eliminates excessive movement through filled parking spaces in a parking area. Thus it reduces the fuel consumption which in turn reduces carbon footprints in an atmosphere.*

**Keywords:** Automobile, IoT, Parking, Sensor, Vehicles.

## **I. INTRODUCTION**

Vehicles parking issues have some problems with how to control the number of the car inside it, how to monitor the movement in/outside of the parking lot, how to check whether there is a place inside for more cars or not and the safety to park. The aim of this project is to solve these problems by designing a system to control the parking area using a microcontroller. The microcontroller serves as a programming tool to run the whole operation, to reduce the cost in terms of requirements such as job opportunity and to increase security. Moreover, this system is faster, flexible and can meet market needs. Area which has a high density of population or metropolitan areas, people generally prefer automobiles like cars or cabs for their convenience to go shopping in shopping malls, markets, hotels or theaters[1].

Searching for a parking place to park their vehicles in a highly populated area which consumes time as well as fuel in search of a nearby parking space. Hence there is a requirement of technology, which will provide the parking slot availability to the user which is registered. Mobile applications will allow the person to get registered for the service and when the arrival time and the area is specified, applications find the free space for parking and notify the user

about the free parking space with location coordinates of the free parking slot. Users can book slots for parking by making online payment through application by using their credit or debit card. In this Proposed System user can search availability of parking space and also choose the vehicle types[2]. If a user has to go to a shopping mall, firstly the user has to visit the website or mobile application and login to a particular mobile application or website to see the status of the slot for parking. If there is a slot for parking, the user can book that slot with the help of a mobile application. Otherwise users can search for a two-wheeler parking slot. In case, if a two-wheeler parking slot is also not free, then the user has the option to use public transport. The user after looking at the situation of parking they will decide what type of vehicle they have to select for their convenience.

Recently, with the increase of automobiles in metropolitan cities, parking of automobiles is becoming a serious issue and in many cities parking systems are very bad. It consumes a lot of time in searching parking slots to park vehicles. The main view of this paper is to provide and design:-

- A mobile application for parking vehicles.
- from home users can book parking slots.
- by using Google map users can search nearby parking space Easy payment systems.
- Owners of parking can add their own place for parking.
- For owners and customers it is easy to automate parking[3].

Users can search their parking area; According to parking space availability users can decide their vehicles are 2-wheeler; 4-wheeler or they use public transport to reach their desired destination. This paper proposed a mobile web application. Where users can register themselves and login to a particular mobile application or website to see the status of the slot for parking. If there is a slot for parking, the user can book that slot with the help of a mobile application. This mobile parking application provides many facilities to users like they can change their information regarding profile such as name, contact information, profile picture and many more, users can change their mobile application password. Any automobile parking owner can also include their parking area location and generate their profile. Availability of parking area and allowance of vehicle for parking, The owner of parking can add charge of parking on daily basis or according to hour basis. the parking owner has to add the location of the parking area, name of parking and the building name. The proposed system is used to notify the user about the vacant parking slots. A user can select the parking slot for vehicles in advance, instead of waiting in a parking area, where the parking availability is shown on smart phones. Vacant parking slots are verified by using Infra-Red (IR) sensors. For each parking slot the IR sensor is used. The infra-red sensor detects the car in infra-red waves reflected and covers a short distance[4]. IR sensor generates a signal of IR light which is emitted with the help of an emitter. Collected data will be transmitted via the GSM module to transfer the data to the microcontroller and results are displayed on the LED screen. The output from the microprocessor depends on the measurement of intensity of light and based on that when allocation of slot is done. On the other hand, the output from microprocessors is changed into

format of text and transmitted to the smart phones through a designed Android application. Now parking details are provided to the users and can select the suitable slots to reserve.

Advantage of Implementing an Advance Parking system.

1. There is no need to waste time on searching for parking.
2. Reduction in Fuel and time spent by users for parking search.
3. Number of queues is less as drivers will be guided to parking slots.
4. Users can select the proper vehicle according to the space availability in the parking area.
5. Advance parking results in more revenues collection and provides profit for parking facilities[5].
6. This system provides transparency between Parking owners and parking agents. This advanced parking system uses a wireless network sensor to monitor the vehicles in the parking area. Every vehicle consists of an active RFID tag which is placed on the front glass of vehicles in order to identify uniquely. There are many main advantages regarding the gate management model such as it is low cost and simple. Management of gate service: RFID tag is also used for gate management. For example, a gate can be automatically opened using an RFID tag reader and tag of vehicle at gate[6].

Disadvantages

1. No guidance system is available for drivers to guide towards vacant parking lots.
2. Advance Parking System access with Bluetooth. In Advance parking systems Bluetooth devices are used to find vacant parking lots in the parking area and the data regarding the free parking area can be obtained only within the Bluetooth range.

The IoT is a mostly used verdict for an art and adjunct of technologies, systems, and study principles associated with mutually emerging whirl of internet-connected machinery that is based on the worldly environment[7]. IoT further refers to the relationship of systems and sensors to the broader Internet, as well as the service of commander Internet technologies. The Internet of Things (IoT) function of virtuoso started mutually material with individuality package devices. The strategy performs possibly be there adamant, reticent or Monitored via individual automation noticeable by computer on the Internet. IoT extends the consideration mutually evaluated to the Internet providing the package, and by a bully of thumb about inter-network of the devices and conventional objects, or 'Things'.

## II. CONCLUSION & DISCUSSION

As a key component of intelligent vehicle technology, automatic parking technology has become a popular research topic. Automatic parking technology can complete parking operations safely and quickly without a driver and can improve driving comfort while greatly reducing the probability of parking accidents. An automatic parking system based on parking scene recognition is proposed in this paper to resolve the following issues with existing

automatic parking systems. Methods of parking scene identification are less intelligent, vehicle control has a low degree of automation, and conventional fuel vehicles are limited to the scope of science. Computer vision and pattern recognition techniques are applied to intelligently recognize a vertical parking scenario, plan a rational parking route, establish a path tracking control strategy to enhance automation of vehicle control, and explore a highly intelligent road map of automated parking technology to maximize the usage of parking spaces and parking convenience.

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