

## Smart parking system

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**Abstract** - Looking for a vacant parking space during peak hours in areas like Clinics, Hotels & Shopping Centers, Airports, Universities, and Exhibitions & Convention Center has always been annoying for some drivers. Now that is a serious issue to look after, and Smart Parking System is one of the best available solutions to at minimum decrease the traffic congestion caused due to the above problem.

Smart Parking is an Internet of Things (IoT) based application, used to sense the available parking seats. This app uses ultrasonic sensor to detect the existence of a automobile (whether the parking space is engaged or not). Based on the parking space occupancy, the status (full/empty) is displayed on the web application dashboard. In real time, the atmosphere has sensors and devices embedded into parking spaces, transmitting data on the occupancy status; and the automobile drivers can search for parking availability using their mobile or any system that is attached to the automobile. Hence the car driver would know where there is a nearest spot to park his automobile in less time, reducing the energy consumption and air pollution.

**KeyWords:** Android, IOT, Web, GSM, Database languages, Sensors etc.

### 1.INTRODUCTION

Smart Parking is IoT based application, used to sense the existing parking spaces. This app uses ultrasonic sensor to sense the occurrence of an automobile (whether the parking space is full or not). Based on the parking controller space occupancy, the status (engaged/empty) is displayed on the web application console.

In real time, the atmosphere has sensors and devices embedded into parking spaces, communicating data on the occupancy status; and the automobile drivers can look for parking availability using their mobile or any system that is attached to the automobile. Hence the driver would know where there is an existing spot to park his automobile in less time, reducing the energy consumption and air contamination.[2]

Studies says that traffic generated by cars searching for vacancies in Parking Spaces is up to 50% of the total traffic. Now that is a stern issue to look after, and Smart Parking System is one of the finest available solutions to at least reduce the traffic congestion caused due to the

above problem. This application gives info about the occupancy status of the spaces in the parking lot equipped with sensors that sense the occurrence of automobiles.

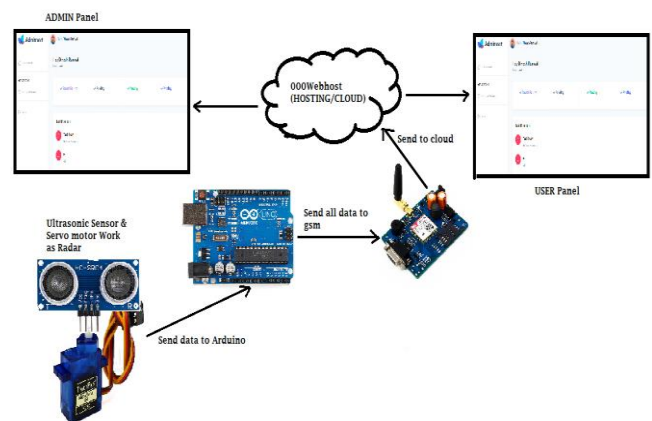


Fig -1: System Architecture of Project

In the system architecture locator module is a sensor which can check the parking status and sent the parking status details to the arduino. Arduino is a supervisor which can store the locator module data and this data referred to cloud with the help of GSM module.

Cloud work as a Web Database and it's stored all data which coming from arduino and this data will display on android application and Dashboard.[3]

The system architecture contains the components are as follows:

1. Radar: Radar module is used to check the parking is available or not.
2. GSM sensor: This sensor is to send the data to web panel.
3. Arduino kit: This part is the heart of the system; The all-other component of system is connected with this kit.
4. Cloud: Cloud is used for maintaining data of bus system.
5. Android application: Android Application for User

## 2. LITERATURE SURVEY

One of the most popular use cases in smart cities is the execution of smart parking solutions, as they allow people to enhance time, reduce fuel ingesting, and carbon dioxide emissions. Because of the evolution of IoT and cloud systems, smart cities have great chances in terms of high-tech growths and accessibility, creating a revolution in some aspects of people’s lives. Smart city applications are being implemented in many nations, as they growth the worth of life of their citizens and help decrease conservational pollution by optimizing time and fuel ingesting. Smart parking is popular among smart cities, reduces congestion, increases income, has a valuing system that is adjust based on the request for availability. Parking space search is one of the most important activities in a city, reaching up to 32% of ground usage in big cities. On average, a automobile is moving 11% of the time, and the rest of the time it remains still either temporarily or forever.[4]

### 2.1 Existing system

There is no live or automatic system available for parking. In cities with high vehicular congestion, finding an available parking spot can be a waste of time and resources. in areas such Delhi, automobiles looking for parking spots produced over 69.4 million tons of carbon dioxide. The inconvenience created by the need for finding a parking slot causes some drivers to park in unauthorized zones, plus increasing vehicular congestion and carbon dioxide emissions. For instance, if drivers had access to database containing information about parking spots in real-time, there would be more opportunities for selecting a proper route to a looked-for parking slot.[2]



Fig -2: Existing Parking System

Sr. No.	Title	AUTHOR NAME	Year
1.	IoT based Smart Parking System	Abhirup Khanna , Rishi Anand	2016
2.	Smart Parking System for Cars	Balwant K. Patil, Avinash Deshpande, Sonal Suryavanshi , Rudresh Magdum	2018
3.	Smart Parking Using IoT Technology	Rachapol Lookmuang, Krit Nambut , Sasiporn Usanavasin	2018
4.	NB-IOT based smart car parking system	M.Praveen , V.Harini	2019
5.	Smart parking systems	Khaoula Hassoune; Wafa a Dachry; Fouad Moutaouakkil; H icham Medromi	2016

### 2.2 Finding

Based on the reviewed literature, In the Existence system people facing high vehicular congestion and every car user to finding an available parking spot can be a waste of time and not easy. Studies says that traffic created by cars searching for vacancies in Parking Spaces is up to 50% of the total traffic. Now that is a serious matter to look afterward, and Smart Parking System is one of the finest available solutions to at least reduce the traffic congestion caused due to the above problem.[1]

### 2.3 Advantages

- The proposed system reduces the traffic.
- Easily give the Available Parking slot
- This application gives you area wise available parking slot

## 2.4 limitations

- Required 24/7 Internet.
- If anyone sensor is not work then it's not given the correct parking information.
- It requires basic knowledge and skills to operate.

## 2.5 Applications

- Mall
- Car or bike user
- Government
- Any organization

## 3. CONCLUSIONS

Looking for a vacant parking space during peak hours in areas like Clinics, Hotels & Shopping Centers, Airports, Universities, and Exhibitions & Convention Center has always been annoying for several drivers. Studies says that traffic generated by cars searching for vacancies in Parking Spaces is up to 50% of the total traffic. Now that is a serious issue to look after, and Smart Parking System is one of the finest available solutions to at least decrease the traffic congestion caused due to the above problem. This application gives info about the occupancy status of the spaces in the parking lot equipped with sensors that sense the presence of automobiles.

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## REFERENCES

- 1) Smart Parking System using IoT: -International Journal of Engineering and Advanced Technology (IJEAT) ISSN: 2249 - 8958, Volume-9 Issue-1, October 2019 Author: - Elakya R, Juhi Seth, Pola Ashritha, R Namith.
- 2) Smart Parking System Based on Internet of Things: - international Journal of Applied Engineering Research ISSN 0973-4562 Volume Ali9, Yasmin Abdul Wahab10
- 3) Smart Parking System Based on Internet of Things: - International Journal of Applied Engineering Research ISSN 0973-4562 Volume 13, Number 12 (2018) pp. 10281-10285 Poonam Mangwani
- 4) IoT based Smart Parking System: - 2016 International Conference on Internet of Things and Applications (IOTA) Maharashtra Institute of Technology, Pune, India 22 Jan - 24 Jan, 2016 Author: - Abhirup Khanna University of Petroleum and Energy Studies (UPES)Dehradun, Uttarakhand