



## **FINAL YEAR PROJECT REPORT**

**(EEE368)**

### **SMART IOT PARKING SYSTEM**

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## **ABSTRACT**

Finding a parking space in most urban places is difficult, especially during rush hour. A lack of efficient parking are the main source of the problem. Due to the little availability of parking spots, many vehicles have compete for a small number of parking spots, causing severe traffic jam. Additionally, this causes people to park illegally so, there is a rise in a more efficient parking system. This project is tasked in creating a Smart Parking System that will be convenient as well as user-friendly. With this drivers can save time on parking while having a safe and secured parking spot . The main component used in this project is the micro-controller unit is the Arduino Uno (Or any known Arduino micro-controller. This device can automatically recognise open, vacant parking spots, enabling cars to park if the spot is unoccupied; otherwise, if the system does not identify an empty spot, the entrance is prevented by the servo barrier. The servo motors then use IR to detect the movement of the vehicle and determine a set output. The parking spot's availability will be shown on a Liquid Crystal Display (LCD 1602), and infrared sensors will monitor how many vehicles are entering and leaving the area. The WiFi module(ESP8266) will be used to indicate beforehand to the driver whether there is an unoccupied parking spot.

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# CHAPTER 1

## INTRODUCTION

### 1.1 BACKGROUND OF STUDY

Parking is an integral part of city transportation, mobility, and infrastructure prosperity, and it is a thriving corporate and public sector economy. The automotive parking market has grown in importance in parallel with the rise of the vehicle market. Parking has become an essential part of journey mobility, as vehicles have. The parking business has always been essential in urban mobility qqsince it is a critical component of achieving a high level of accessibility in a city. Many businesses and communities believe adequate parking, particularly for visitors, is critical to competitiveness. Indeed, many businesses and communities believe adequate parking is essential to their competitiveness, particularly for visitors. As the number of vehicles grows and there are no efforts or solutions to address the current situation, various issues arise, most notably concerning the limited public parking lots. This can have a significant impact, especially on commercial real estate.

As a response to public behaviour, parking issues arise. Ordinary persons can drive their cars toward the market and park anywhere and whenever they like . According to recent research conducted in major cities, the smart parking problem can be approached from various perspectives. The route has a high density of cars . Vehicles face a frustrating situation because obtaining a parking space is difficult. In most cases, drivers waste time and energy looking for a parking spot and risk parking

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **INTRODUCTION**

An IoT-based smart parking system is a centralized management that enables drivers to search for and reserve a parking spot remotely through their smartphones. It offers a convenient arrangement for drivers to park their cars when they are looking to avoid potential traffic congestion. The system's hardware sensors detect available slots and communicate the information to the drivers in that area in real-time. IoT technology ensures that they do not have to worry about finding an available space again thus allowing them to travel conveniently

Besides, the connected device sends alerts about peak times . No one wants to struggle to find a parking slot or pay more at any given point. Using smart parking technology will help maximize the consumption of existing parking space, increase the effectiveness of parking operations, and facilitate easier traffic flow with just a few taps on a mobile app. Smart parking solutions are intended to give drivers complete control of their journey - from start to finish - without having to hunt for parking. The IoT technology helps save costs and minimize travel time. IoT forms the foundation for real-time data collection and analysis. IoT provides the means to connect various devices and sensors in the parking ecosystem and fetch data that can be used to optimize operations. The future of smart parking lies in the integration of IoT with autonomous vehicles. The arrangement would free up even more road space and make it easier for people to get around