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**ABSTRACT**

It is very common waiting outside a parking lot and looking if any space available in there, this overtime will be irritating and time consuming especially in traffic rich cities like Bangalore, Delhi etc.

Everyone would have frequently experienced that they park their vehicle somewhere beside the road and by the time they return the vehicle is gone, this would have been the worst day for a person having plans for the day. Thus, knowing the availability of parking space in advance would help people to plan for the same and save the time which would have been spent in looking for a spot in the lot. The parking fee is also a major concern of people, wherein many of them would not know the cost of parking per hour basis and which would cause them to pay more than the actual fee for it.

This Parking Management App is a parking solution which to solve the above problems by providing the user with the available space in the lot and calculate the amount accurately with the parameters of entry time and exit time. It will also keep history of all the vehicles parked at any parking spot with specific date and time.

1. **INTRODUCTION**

With the increase in use of private vehicle in recent years, the problem of car parking has raised in busy and big cities of the world. In crowded cities of the world, mostly a person must spend a lot of time in finding the vacant parking lot.

As an important component of traffic system, parking management system is playing an important role and affecting people’s daily life.

By detecting and processing the information from parking lots, smart parking systems allows driver to obtain real-time parking information and alleviates parking contentions.

A Smart Parking Management system is a parking solution which is embedded into parking spots to detect whether parking bays are free or occupied through real-time data collection. It will not only help in generating bill for parking of car but will also keep record of all the vehicles parked at any parking spot with specific date and time.

* 1. **INTRODUCTION TO MOBILE APPLICATION DEVELOPMENT**

Mobile application development is the process to making software for Smartphone and digital assistants, most commonly for Android and iOS.

The software can be preinstalled on the device, downloaded from a mobile app store or accessed through a mobile web browser. The programming and markup languages used for this kind of software development include Java, Swift, C# and HTML5.

Mobile app development is rapidly growing. From retail, telecommunications and e-commerce to insurance, healthcare and government, organizations across industries must meet user expectations for real-time, convenient ways to conduct transaction and access information. Today, mobile devices- and the mobile applications that unlock their value-are the most popular way for people and business to connect to the internet. To stay relevant, responsive and successful, organizations need to develop the mobile applications that their customers, partners and employees demand.

* 1. **WHAT IS MOBILE APP?**

A mobile application or mobile app is a computer program or software application designed to run on a mobile device such as a phone, tablet, or watch. Apps were originally intended for productivity assistance such as email, calendar, and contact databases, but the public demand for apps caused rapid expansion into other areas such as mobile games, factory automation, GPS and location-based services, order-tracking, and ticket purchases, so that there are now millions of apps available.

Apps are generally downloaded from application distribution platforms which are operated by the owner of the mobile operating system, such as the App Store (iOS) or Google Play Store.

Mobile applications often stand in contrast to desktop applications which are designed to run on desktop computers, and web applications which run in mobile web browsers rather than directly on the mobile device.

Mobile App has many advantages like within a short app we can communicate a lot of information to the client/customers and even it is an ease of access to client/customer for services update or sale/purchase activity.

* 1. **WHAT IS MOBILE OS?**

A mobile operating system is an operating system for mobile phones, tablets, smart watches, 2-in-1 PCs, smart speakers, or other mobile devices. While computers such as typical laptops are ‘mobile’, the operating systems used on them are generally not considered mobile ones, as they were originally designed for desktop computers that historically did not have or need specific mobile features. This distinction is becoming blurred in some newer operating systems that are hybrid made for both uses.

A mobile OS is responsible for identifying and defining mobile device features and functions, including keypads, application synchronization, email, thumbwheel and text messaging. A mobile OS is similar to a standard OS (like Windows, Linux, and Mac) but is relatively simple and light and primarily manages the wireless variations of local and broadband connections, mobile multimedia and various input methods.

* 1. **INTRODUCTION TO ANDROID STUDIO**

Android Studio is the official Integrated Development Environment (IDE) for Android app development, based on IntelliJ IDEA. On top of Intellij’s powerful code editor and developer tools, Android Studio offers even more features that enhance your productivity when building Android apps, such as:

* A flexible Gradle-based build system
* A fast and feature-rich emulator
* A unified environment where you can develop for all Android devices.
* Apply Changes to push code and resource changes to your running app without restarting your app.
* Code templates and GitHub integration to help you build common app features and import sample code.
* Extensive testing tools and frameworks.
* Lint tools to catch performance, usability, version compatibility, and other problems.
* C++ and NDK support.
* Built-in support for Google Cloud Platform, making it easy to integrate Google Cloud Messaging and App Engine.

Android Studio provides a unified environment where we can build apps for Android phones, tablets, Android Wear, Android TV, and Android Auto.