

System Analysis and Project Management



Park In – Renting Parking Space System
Streamlining the management of parking space

GROUP 10

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Executive Summary

Park In – Renting Parking Space System is a game-changing solution designed to completely transform the urban parking experience. By connecting drivers with available parking spaces in real-time, Park In solves two pressing issues: the headache of finding parking in busy cities and the missed opportunities of underutilized parking spots. Our innovative digital marketplace empowers parking space owners to earn extra income while making it effortless for drivers to find, reserve, and pay for parking.

Key Highlights

Objective:

Simplify urban parking with a seamless platform for discovering and booking spaces while boosting revenue for space owners.

Key Features:

- 🌟 User-Friendly Interface: Effortlessly list or book parking spaces.
- ⌚ Real-Time Availability: Access live updates and make advanced bookings.
- 💳 Secure Payment Gateway: Supports both short-term and long-term agreements.
- 💰 Dynamic Pricing & Ratings: Drive quality service and maximize earnings.
- 📍 Location Accuracy: Integrated with Google Maps for precise directions.

Stakeholders

Parking space owners, drivers, platform administrators, developers, and third-party service providers.

Scope & Goals

Reduce Urban Traffic: Ease congestion and streamline mobility.

Save Time for Drivers: Efficiently find and reserve parking.

Create New Income Opportunities: Empower space owners to generate revenue.

Scalability & Adaptability: Designed to suit various urban environments, making parking an integral part of city life.

Why It Matters

Park In transforms parking from a stressful daily chore into a convenient and profitable

experience. Our solution not only enhances individual lives but also contributes to better urban living. We ensure full compliance with technological and regulatory standards, leveraging cutting-edge digital tools to keep our platform ahead of the competition.

Problem Statement:

The difficulty in locating available parking spaces results in significant inconvenience for car owners and contributes to traffic congestion. Simultaneously, property owners with surplus parking capacity face challenges in effectively monetizing these spaces. There is a critical need for a comprehensive solution that enhances the efficiency of parking space discovery and utilization, while also optimizing the revenue potential for owners of unused parking resources.

Objective and Scope:

The primary aim is to develop a comprehensive platform designed to revolutionize the way parking spaces are rented. This innovative solution will serve as a digital marketplace where owners of parking spaces can effortlessly list their available spots for rent. This will empower users to search for, book swiftly, and pay for parking spaces that suit their needs, whether for short-term or long-term use.

Key Features of the Platform:

- 1. User-Friendly Interface:** The platform will boast an intuitive and user-friendly interface, making it simple for parking space owners to list their spots with detailed descriptions, pricing, and availability. Similarly, users looking for parking spots can easily navigate through the options, using filters to match their specific requirements.
- 2. Advanced Booking System:** Users will be able to book parking spaces in advance, ensuring that they have a spot waiting for them upon arrival. This system will also support on-demand bookings for immediate parking needs.
- 3. Secure Payment Gateway:** The platform will integrate a secure, hassle-free payment system, allowing immediate transactions between parking space owners and users. This will include options for both short-term and long-term parking agreements.
- 4. Rating and Review System:** The platform will feature a rating and review system to ensure trust and transparency. Users can rate their parking experience, while owners can rate users, too. This feedback loop will help maintain high-quality standards and accountability.

5. Dynamic Pricing Option: For parking space owners, the platform will offer a dynamic pricing tool, which adjusts the rent based on demand and other factors, potentially increasing their earnings during peak times.

6. Support for Multiple Locations: Whether it's a driveway in a residential area or a designated parking spot in a commercial building, the platform will cater to diverse types of parking spaces in various locations, increasing the options available to users.

By simplifying the process of finding and securing parking spots, this platform not only aims to alleviate the common hassles associated with urban parking but also provides a lucrative opportunity for individuals and businesses with unused parking capacity to generate additional income. By implementing this platform, we envision a future where parking is no longer a source of frustration but a seamless part of the urban mobility experience. Finding a place to park your car is often a big headache, making drivers spend a lot of time looking for an empty spot. This search makes traffic in cities even worse. Conversely, some people have extra parking spots they don't use but have yet to figure out how to profit from them. There's a significant need for an intelligent way to match drivers with empty parking spots quickly. This would help drivers save time, reduce traffic, and let parking space owners earn extra money.

Statement of Purpose

This project aims to solve the daily parking issues by creating a platform that connects drivers with available parking spaces. The platform will allow parking space owners to easily list and earn money from their owned parking spaces, and it will also provide drivers with a simple way to find, book, and pay for parking. Key features of this project will include real-time availability, secure payments, flexible pricing, and an easy-to-use mobile app. With the help of this project, we aim to reduce traffic congestion, save drivers time, and create new income opportunities for parking space owners, making parking a more convenient part of city life.

Overall Goal

The goal of this project is to create an efficient and user-friendly application that transforms the parking experience by connecting drivers with available parking spaces in real-time. This platform will simplify the process of finding, booking, and paying for parking while enabling property owners to monetize unused spaces. By reducing the time spent searching for parking and easing traffic congestion, the solution aims to enhance urban mobility and provide a convenient, profitable system for both drivers and parking space owners.

Assumptions:

1. User Availability and Interest:

- **Assumption:** There is sufficient interest from both parking space owners and renters in the regions targeted by the platform.
- **Reason:** The success of the platform depends on enough users listing and booking parking spaces.

2. Stable and Secure Payment Integration

- **Assumption:** Payment gateways will work seamlessly, ensuring secure transactions for users.
- **Reason:** Trust in payment systems is crucial for users to confidently make bookings

3. Reliable Third-Party Services

- **Assumption:** Third-party services like Google Maps, location services, and payment APIs will be available and work without significant downtimes.
- **Reason:** Accurate location services and reliable payment processing are key to the platform's functionality.

4. Sufficient Budget and Resources

- **Assumption:** The allocated budget will be sufficient to cover development, marketing, and maintenance costs.
- **Reason:** Development, testing, and promotion require significant investment, especially in competitive markets.

5. Technological Infrastructure

- **Assumption:** The platform will be able to handle traffic and scale as user demand increases without major issues.
- **Reason:** A scalable and reliable infrastructure is essential for handling a growing user base.

6. Legal and Regulatory Compliance

- **Assumption:** There are no major legal or regulatory hurdles that will significantly delay or complicate the launch in different markets.
- **Reason:** Parking regulations and data privacy laws vary by region and need to be accounted for.

7. Competitive Landscape

- **Assumption:** The platform will differentiate itself sufficiently from competitors to capture a meaningful market share.
- **Reason:** Many parking apps exist, and the platform's unique value proposition is key to attracting users.

8. User Behavior

- **Assumption:** Users will adopt the app and continue using it for both short-term and long-term parking needs.
- **Reason:** Retaining active users is critical for sustainable growth.

9. Project Timeline

- **Assumption:** The project will be completed within the estimated timeline without major delays.
- **Reason:** Delays in any phase (development, testing, deployment) could increase costs and affect market launch.

Stakeholders:

1. Parking Space Owners

- **Role:** Individuals or businesses that own parking spaces and list them on the platform.
- **Interest:** They want an easy-to-use platform that allows them to rent out their parking spaces and generate income.

2. Parking Space Renters (Users)

- **Role:** People looking for parking spaces for short-term or long-term use.
- **Interest:** They want a convenient way to find, book, and pay for parking spaces at affordable rates.

3. Project Team

- **Role:** Developers, designers, project managers, QA testers, and marketers working on the platform.
- **Interest:** Responsible for building and maintaining the platform, ensuring its smooth launch and ongoing success.

4. Platform Administrators

- **Role:** Staff managing the platform, including customer support, maintenance, and content moderation.
- **Interest:** Ensuring the platform runs smoothly, addressing user concerns, and managing the listing and booking processes.

5. Payment Gateway Providers

- **Role:** Third-party companies facilitating transactions between parking space owners and renters (e.g., PayPal, Stripe).
- **Interest:** They benefit from fees per transaction and require seamless integration with the platform.

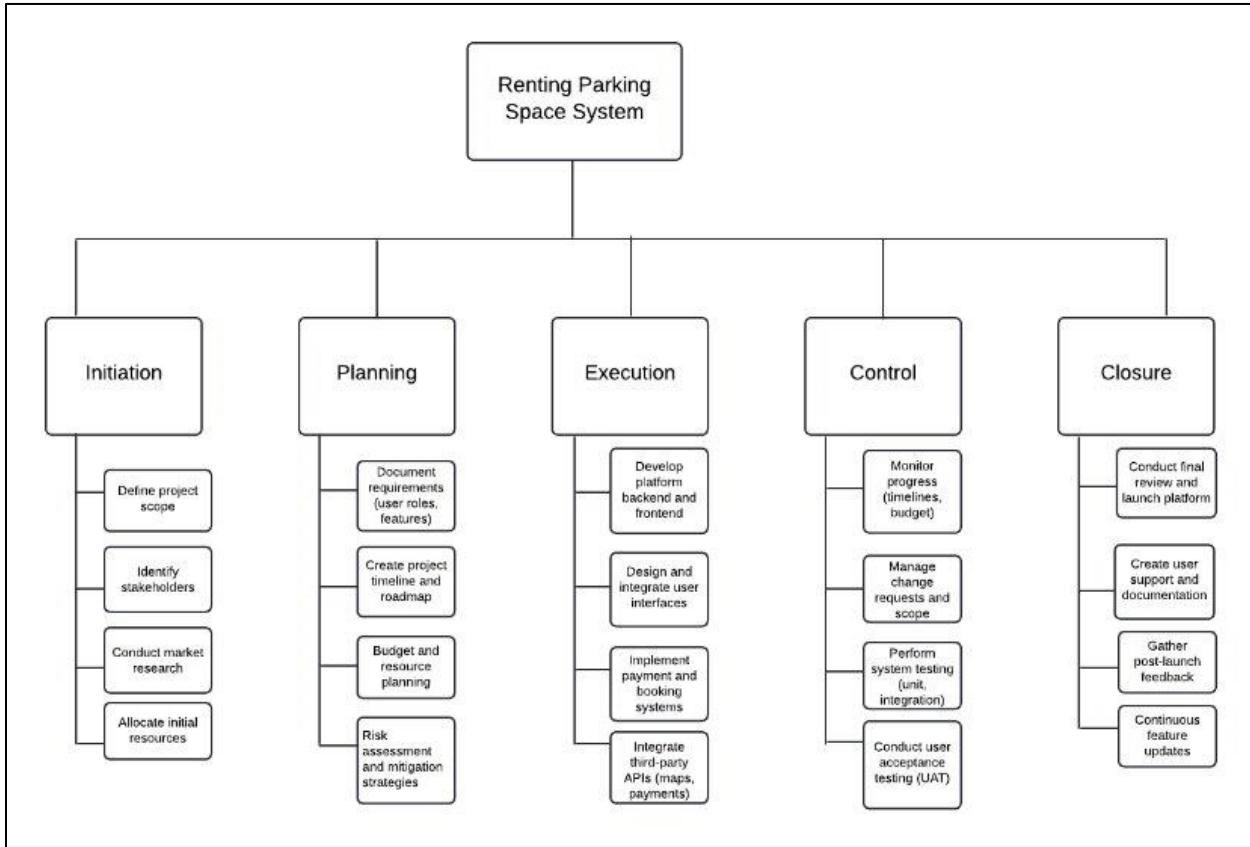
6. Third-Party API Providers

- **Role:** Services like mapping (Google Maps), location services, and other necessary integrations.
- **Interest:** Ensuring their APIs work well on the platform to enhance the user experience.

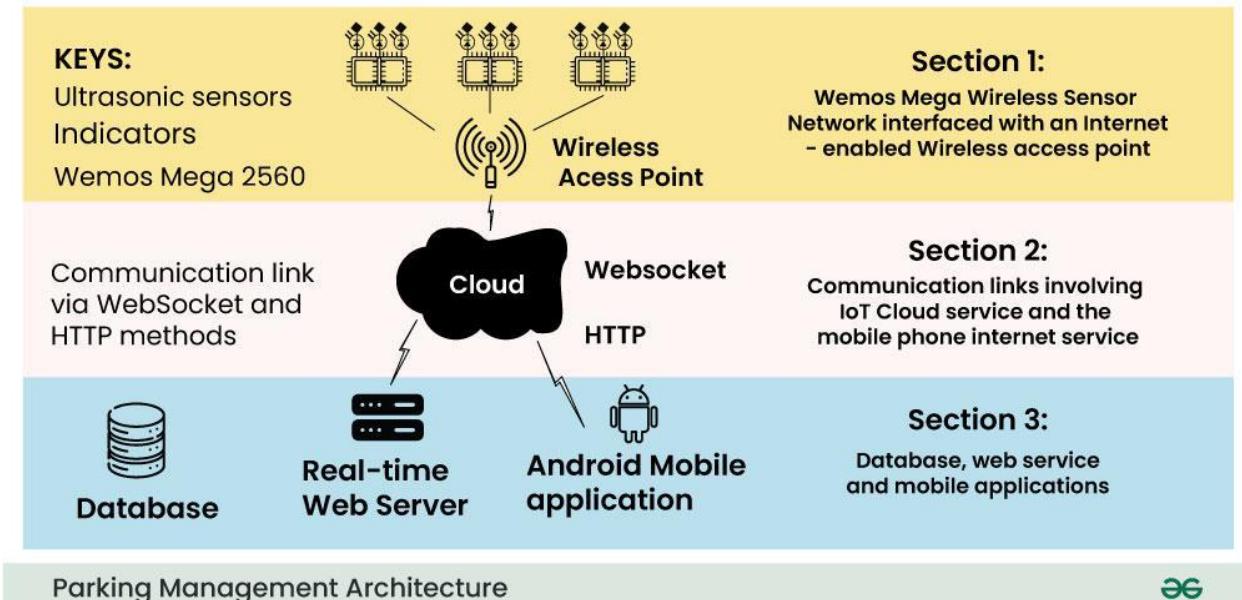
7. Marketing and Advertising Teams

- **Role:** Teams responsible for promoting the platform to attract users and parking space owners.
- **Interest:** They need a compelling product to market, and their success is tied to user acquisition.

Work Break Diagram



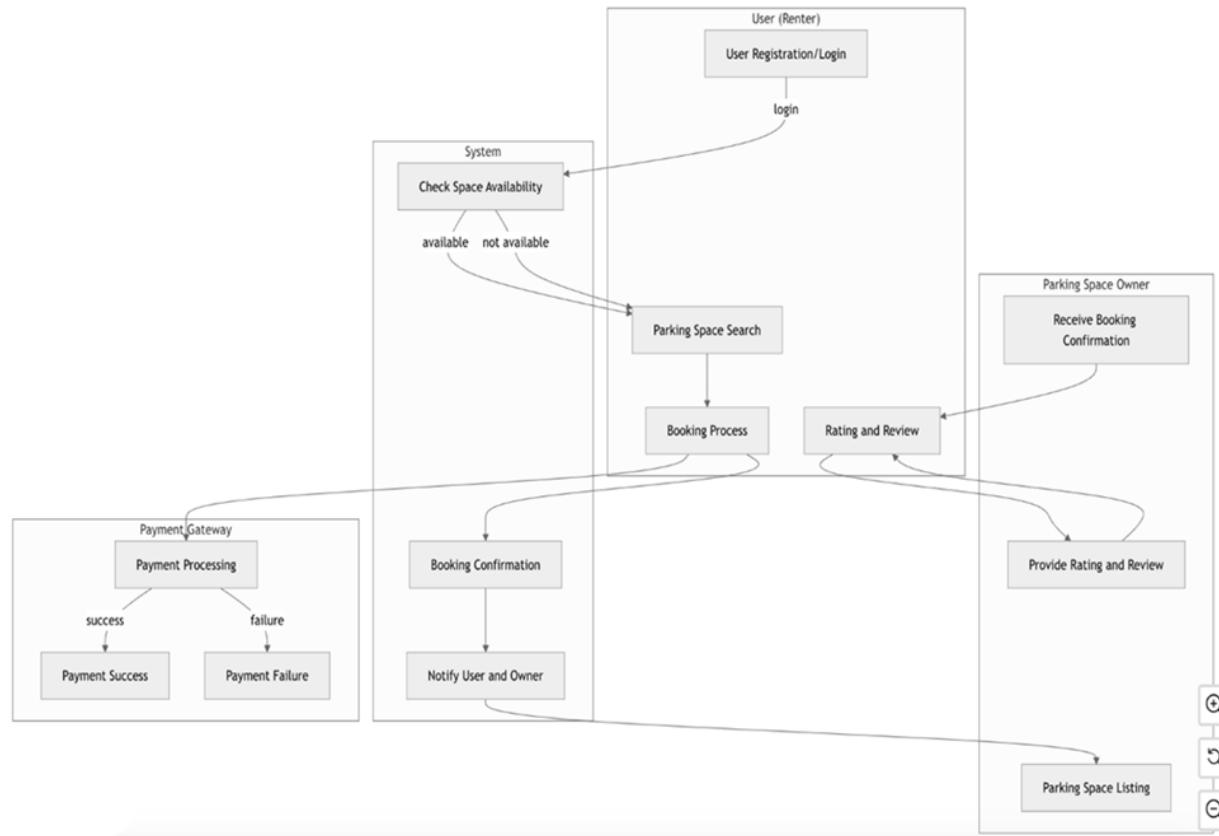
Software Design



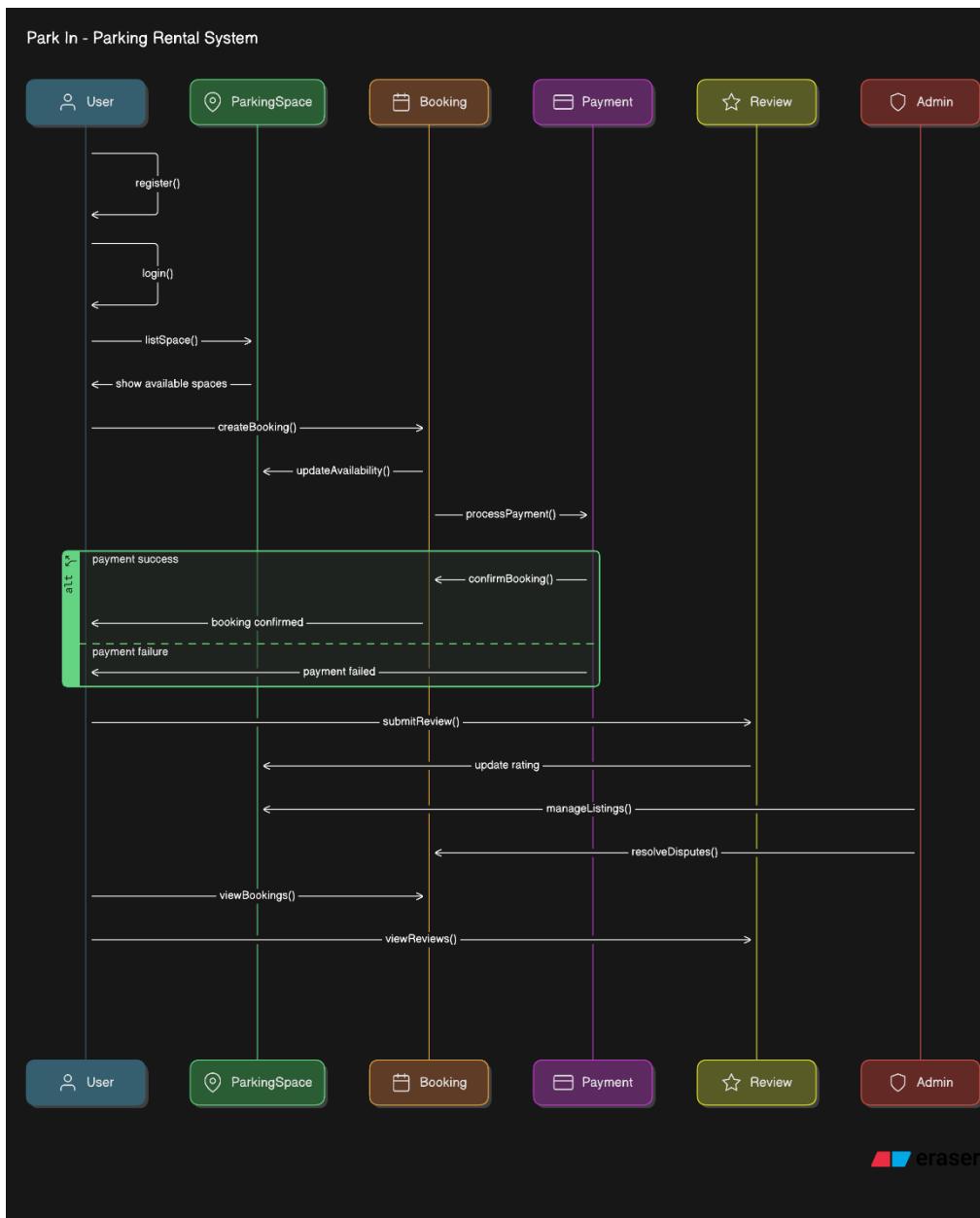
Parking Management Architecture



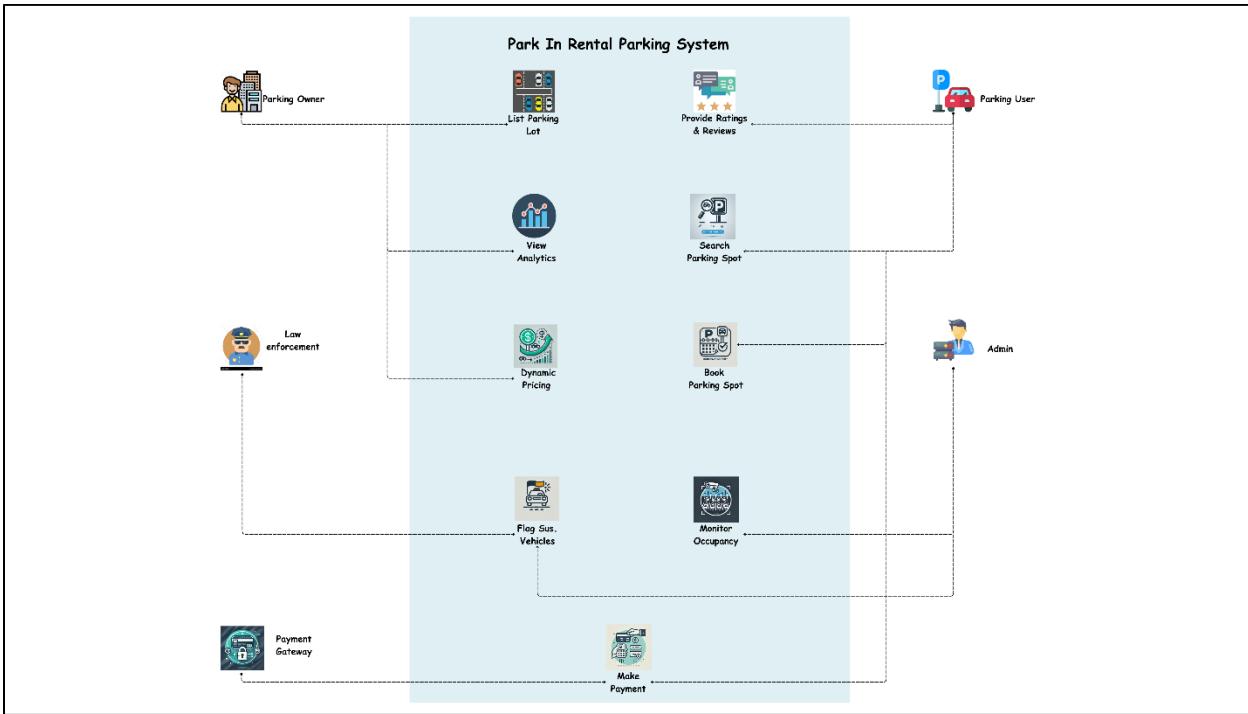
Process Modeling Diagram



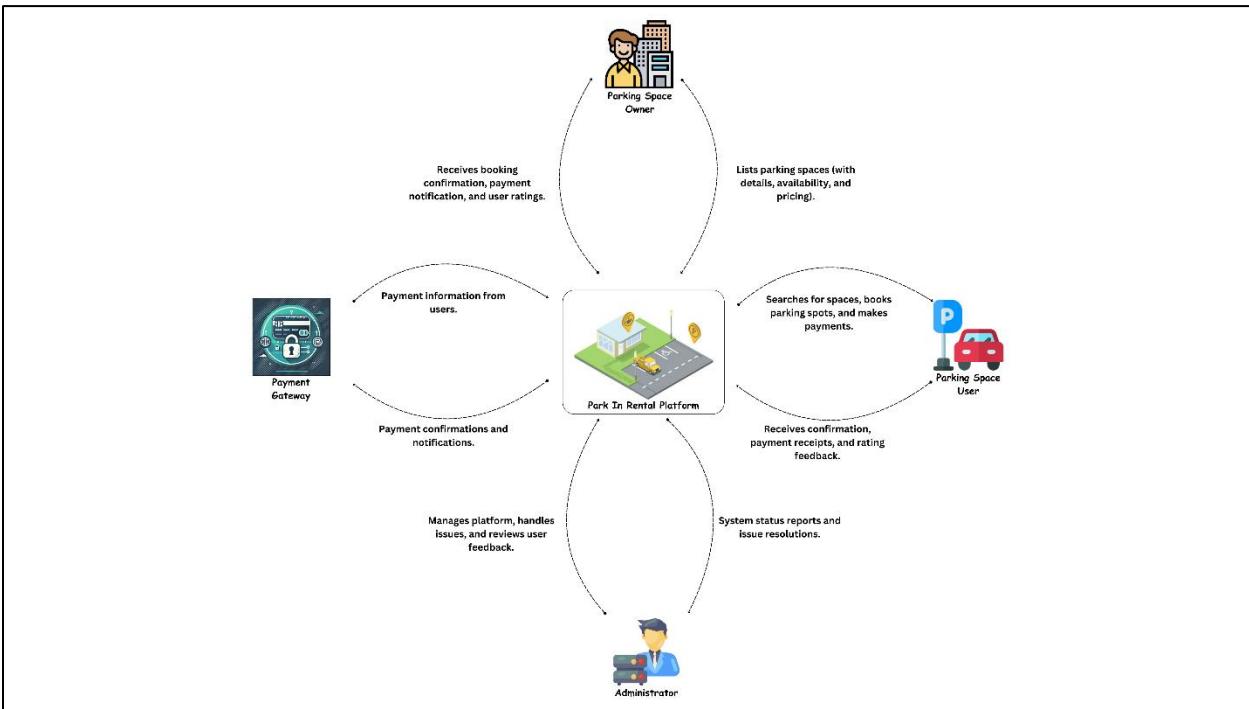
Sequence Diagram -



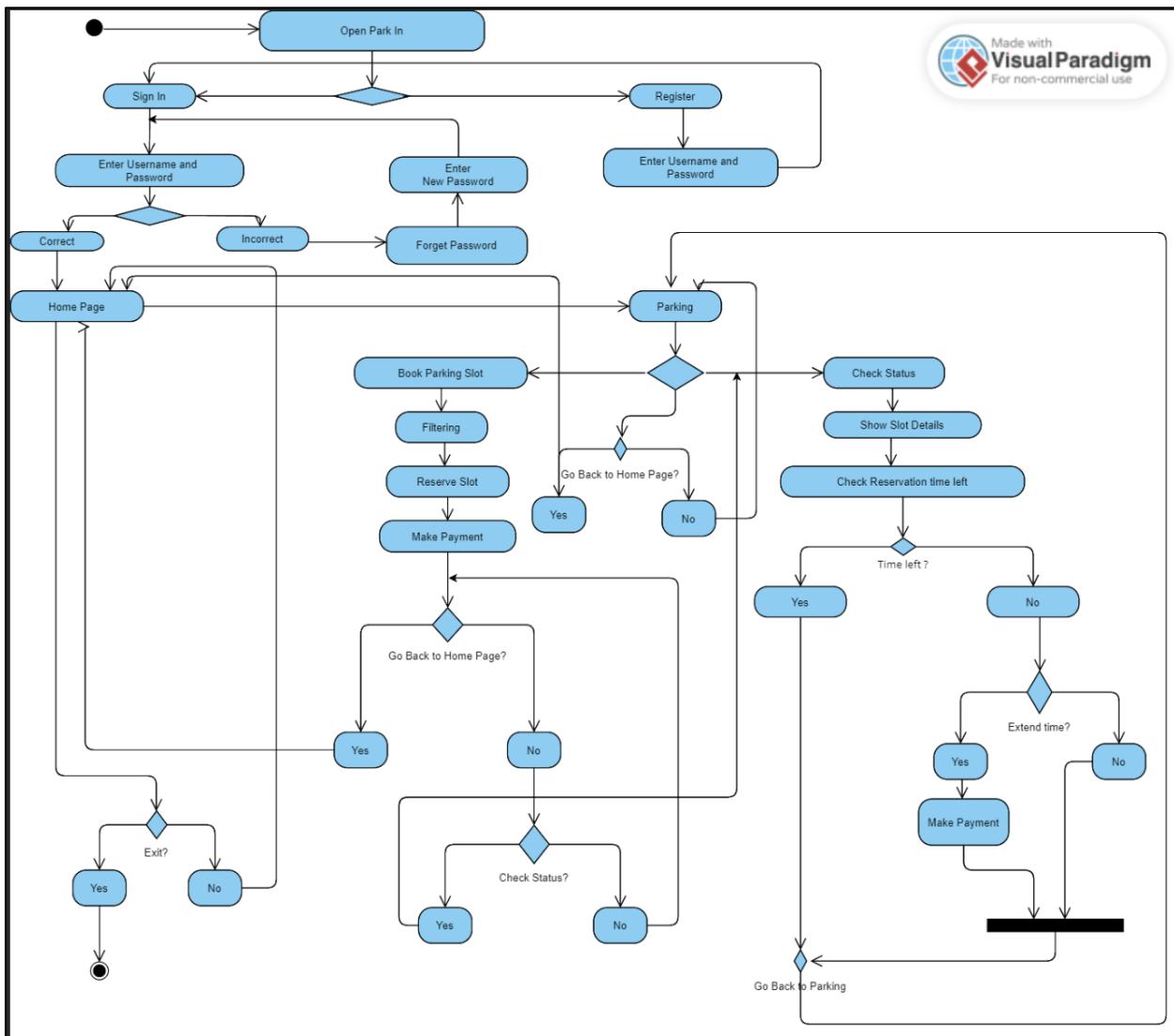
Use – Case Diagram:



System Context Diagram:



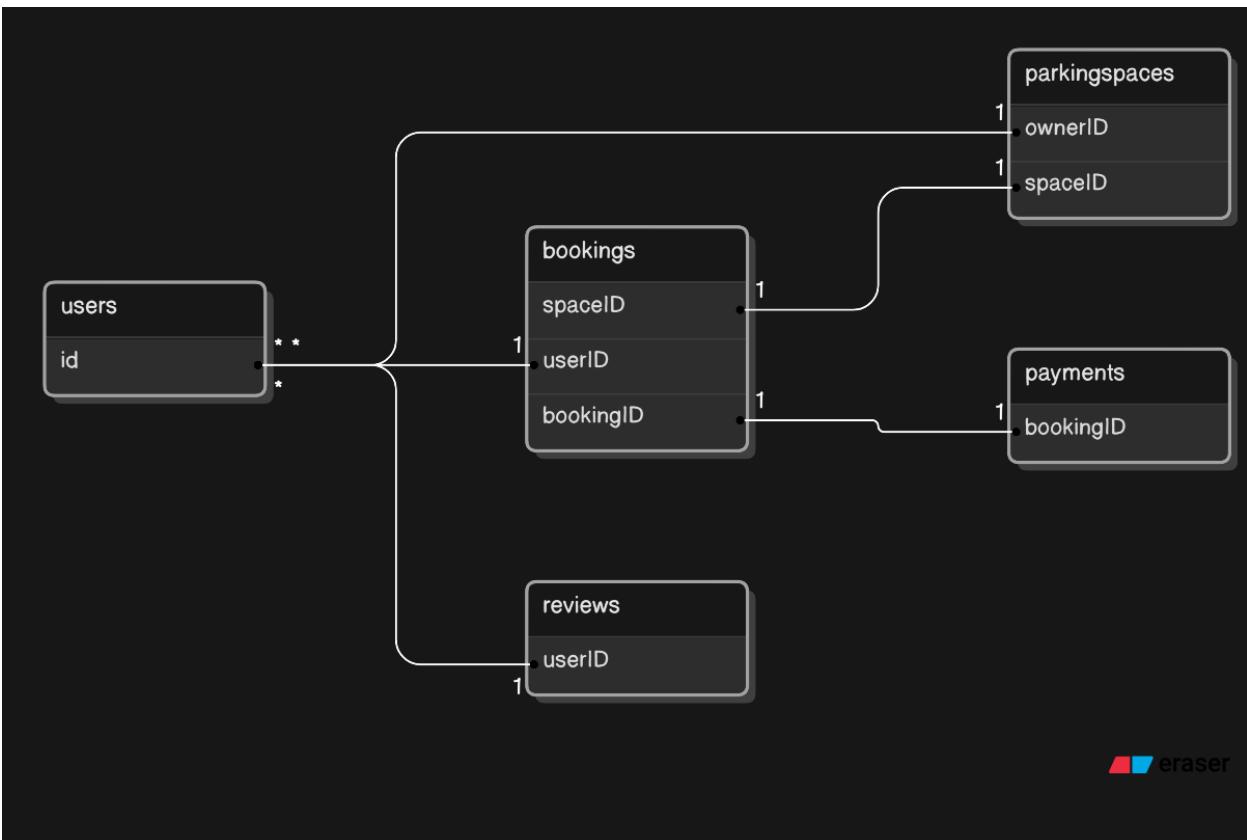
Activity Diagram:



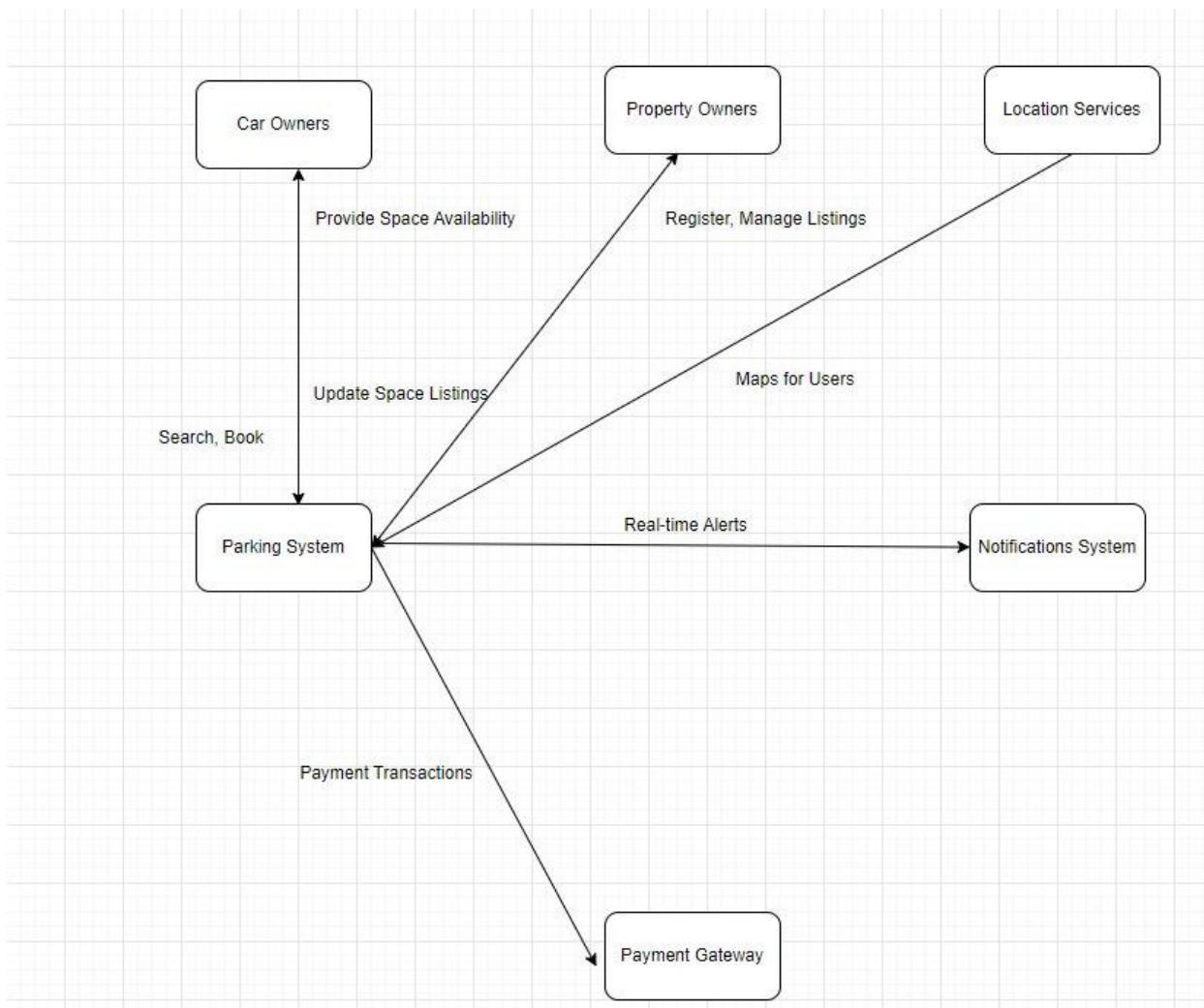
Class Diagram:



Entity Relationship Diagram



Data Flow Diagram -



Database design:

Interface design:

Prospective Features:

The system will be accessed mainly through a downloadable app. This app will use an internet connection to give real-time updates on the user's location. Users who expect to travel to areas with limited or no internet access can pre-download the most recent reports for those regions.