

PARKING LOT MANAGEMENT SYSTEM-OVERVIEW

The Parking Lot Management System offers a comprehensive solution for efficiently managing and utilizing parking resources. Designed with both users and parking managers in mind, the system provides real-time tracking of available spaces across multiple lots, allowing drivers to locate open spots quickly and reduce search time. This real-time availability data is also accessible to parking managers, enabling them to respond promptly to fluctuations in occupancy and optimize parking utilization throughout the day.

For enhanced user experience, the system includes an advanced reservation feature that allows drivers to reserve parking spots in advance, ensuring availability upon arrival. This is especially valuable for events and high-demand periods, where users can conveniently secure a spot without last-minute stress. Automated notifications confirm reservations, provide reminders, and offer updates on parking availability, keeping users informed and confident in their parking arrangements.

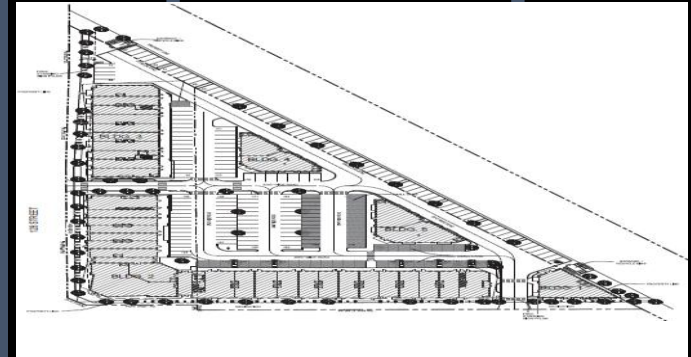
“EFFICIENT PARKING
MANAGEMENT IS MORE THAN
JUST SPACES—IT'S ABOUT
ENHANCING USER
CONVENIENCE, OPTIMIZING
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SMARTER DECISIONS WITH
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<https://github.com/mhawkins55/ParkingLotManagementSystem/blob/main/Parking%20Lot%20Management%20System.pdf>

Demo Link:

HTTPS://IU.MEDIASPACE.KALTURA.COM/MEDIA/T/1_22ILA47C

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The system's secure payment processing streamlines checkouts, offering multiple payment options to meet diverse user needs. For parking managers, the management dashboard serves as a central hub for monitoring occupancy, handling reservations, and reviewing payment transactions

SYSTEM DIAGRAM

The Parking Lot Management System diagram illustrates how drivers, assistants, and managers interact with a central database for efficient parking management. Drivers use an interface to check parking availability, book spaces, and make payments, while assistants update occupancy and assist on-site. Managers access reports and usage statistics to make data-driven decisions. All payments go through a secure gateway, connecting with the database to ensure accurate, real-time data across all interactions, enabling smooth, reliable operations.

FEATURES AND FUNCTIONALITIES

- **Feature 1:** Reserving a Parking Spot—This feature allows users to view available spots, select a space, and reserve it through a user-friendly interface.
- **Feature 2:** Real-Time Availability Tracking – Displays the current status of parking spaces (occupied, available, or reserved).
- **Feature 3:** Payment Processing – Integrates payment options (e.g., credit card, mobile payment) for seamless transactions.
- **Feature 4:** Administrative Control – Provides admins with dashboards to manage rates, monitor occupancy, and view real-time analytics.
- **Feature 5:** Confirmation Notifications – Sends confirmation messages upon successful reservation and payment completion.

Use Case scenario

A regular commuter, John, uses the ParkEase mobile app to check parking availability near his office. He reserves a spot, drives to the parking lot, and enters using automated license plate recognition. At the end of the day, John exits the lot, and the fee is deducted automatically from his linked wallet.

SYSTEM STRUCTURE

The Parking Lot Management System's architecture provides a user-friendly experience across roles, with dedicated dashboards for drivers, managers, and parking assistants. The interface allows drivers to check spot availability and manage reservations, while managers can monitor occupancy and access analytics. A secure backend with an SQL database supports data management and reporting, and a real-time notification system keeps users updated. Additionally, a secure payment gateway ensures smooth transactions, processing and record-keeping, creating a reliable and efficient system for all users.

