

CREATING FULLSTACK APPLICATION

PROBLEM STATEMENT :

The aim of this project is to address the difficulty of finding parking spaces in crowded urban areas. Due to the lack of real-time information and manual parking processes, drivers waste time, fuel, and effort searching for available slots. This project, ParkEase, provides a smart parking solution using the MERN stack that allows users to view parking availability, book slots in advance, make simulated payments, and manage bookings digitally. The system also enables administrators to manage parking lots, pricing, and availability efficiently.

OBJECTIVES :

- Provide real-time parking availability
- Enable advance parking slot booking
- Support simulated online payments
- Allow remote booking extension
- Enable admin management of parking lots and pricing

SOLUTION :

ParkEase is a MERN-stack based smart parking system designed to help users find, book, and manage parking slots in crowded cities efficiently. It provides real-time availability, supports advance booking and payments, and allows administrators to manage parking lots, pricing, and occupancy seamlessly.

- Node.js:
Handles the backend logic, processes user requests, manages the database connections, performs background tasks, and supports real-time updates.
- Express.js:
Facilitates building backend APIs, managing routes, handling authentication, and controlling errors in a structured manner.
- React:
Creates a smooth, responsive single-page application (SPA) where users can log in, view parking availability, book slots, extend bookings, and leave reviews.
- MongoDB:
Stores all application data including users, parking lots, bookings, and payments, ensuring efficient data management.

Github link : https://github.com/avi-0605/ParkEase_CFA

Deploy link : <https://park-ease-cfa.vercel.app/>

LANDING PAGE :

The image shows the homepage of ParkEase. At the top left is the logo 'ParkEase' with a car icon. The top right features navigation links: 'Home', 'Find Parking', 'Login', and a blue 'Register' button. Below the header, a banner states 'Smart Parking v2.0 is Live'. The main title 'Parking Made Effortless & Smart.' is displayed in large, bold, blue text. A subtext below it reads: 'Stop circling the block. Find, book, and pay for parking in real-time. Experience the future of urban mobility with ParkEase.' Two buttons at the bottom are 'Find a Spot' with a magnifying glass icon and 'Get Started >'. To the right is a large blue callout box containing a white car icon inside a teal location pin, with the text 'STATUS Live Updates' below it.

 ParkEase

[Home](#) [Find Parking](#) [Login](#) [Register](#)

Why Choose ParkEase?

We combine cutting-edge technology with user-centric design to solve the most frustrating part of driving.



Real-Time Availability

See exactly which spots are open right now. No more guessing.



Instant Booking

Reserve your spot in seconds. Your space waits for you.



Seamless Payments

Pay digitally. Calculated automatically based on duration.



Secure & Reliable

Verified parking lots with 24/7 security monitoring.

USERS / DRIVER VIEW :

**ParkEase**

[Home](#) [Find Parking](#) [Login](#) [Register](#)

Join ParkEase

Start your smart parking journey today

Driver (I want to park) ...

Create Account

Already have an account? [Sign in >](#)

The screenshot shows the ParkEase Driver Dashboard. At the top, there's a navigation bar with icons for Home, Find Parking, Dashboard, and a user profile for 'avani'. A 'Welcome back, avani' message is displayed. On the left, a sidebar titled 'Driver Dashboard' shows 'Active Sessions' (0), 'Upcoming Bookings' (0), and 'Total History' (0). The main area has a blue header 'Find Your Spot' with a sub-instruction 'Locate nearby parking, check real-time availability, and book your slot in seconds.' Below this is a button with a car icon and the text 'Open Map Search'. To the right, a section titled 'My Vehicle' shows 'No Vehicle' with a note 'Car - Petrol'. A yellow box contains a tip: 'Tip: EV owners get priority parking in selected automated parking lots.' At the bottom, a 'Recent Activity' section with a 'View All' link is visible.

ParkEase

Book Your Spot

- Advance Booking Enabled**: You can book slots up to 7 days in advance.
- Start Time**: 16/12/2025, 02:26 PM
- End Time**: 16/12/2025, 03:26 PM
- Smart Pricing Active**: Rates are calculated based on real-time demand and duration. Extend anytime from your checkout.
- Total Price**: ₹45.00

Order Summary

- LOCATION**: Kamotthe, Navi Mumbai
- RATE**: ₹45/hr
- Total Price**: ₹45.00

Proceed to Payment >

Secure Payment ₹45.00

CARD NUMBER: 0000 0000 0000 0000

CARDHOLDER NAME: AAVANII RAJESH

EXPIRY: 12/32

CVV: ...

Cancel **Pay Now**

⚠ Payments are secure • Simulated Environment

ParkEase

Parking Receipt
ID: 95138C7e

UPCOMING

LOCATION: Kamotthe, Navi Mumbai
Kamotthe, Navi Mumbai, Maharashtra, India

SLOT ID: A-1 **AMT PAID**: ₹45

Date: 12/16/2025 **Duration**: 08:26 PM - 09:26 PM

QR Code

Scan this code at the parking terminal for entry/exit.

ADMIN VIEW :

ParkEase

TOTAL LOTS: 1 **TOTAL SLOTS**: 120 **ACTIVE BOOKINGS**: 1 **EARNED REVENUE**: ₹12500

Peak Hour Insights: 0:00 - 1:00 LOW (0)

System Alerts: SYSTEM Backend services are running normally.

Activity Log

- TOGGLE_STATUS: PARKING_Lot "Talaja, Navi Mumbai" is now inactive [10/12/2025]
- TOGGLE_STATUS: PARKING_Lot "Talaja, Navi Mumbai" is now Active [10/12/2025]
- TOGGLE_STATUS: PARKING_Lot "Talaja, Navi Mumbai" is now inactive [10/12/2025]

Add Parking Lot

Manage Locations

| INFORMATION | STATUS | CAPACITY | CONTROLS |
|---|---------|-------------------|----------|
| Talaja, Navi Mumbai Talaja, Navi Mumbai, India | Enabled | 120/120 Available | |

Add Parking Lot

Name:

Address:

120 35

Latitude (e.g. 1):

Longitude (e.g.):

Create Lot