

Initial Idea (Pitch): A Distributed Parking Sharing Application

Objectives of the Project

The objective of this project is to create a distributed parking sharing application that enables users to find and share parking spaces in urban areas with minimal reliance on centralized servers. The system will foster a community-driven approach to solving the challenge of finding available parking, reducing traffic congestion and environmental impact, and promoting collaboration among users. By leveraging a distributed architecture, the application ensures scalability, reliability, and privacy, even in areas with limited network connectivity.

What the System Should Do

The system will allow users to:

- Share information about available parking spaces in real-time, including private and public spots.
- Search for parking spaces near a specific location, with updates on availability.
- Reserve parking spaces, if applicable, based on user permissions.
- Operate effectively in a peer-to-peer network, ensuring data consistency without reliance on centralized servers.

The application will use a distributed architecture where data about parking availability is shared and synchronized between users' devices. It will integrate geolocation and peer-to-peer communication technologies to provide a seamless and reliable experience.

Potential Users

The primary users of the application include:

1. **Commuters and Drivers:** Individuals looking for parking spaces in congested urban areas.
2. **Residents:** People who wish to share their private parking spaces when they are not in use.
3. **Event Attendees:** Drivers seeking temporary parking near event venues.
4. **Local Businesses:** Businesses with parking lots that can be shared with the community during off-hours.

More Important Use Cases

1. **Finding a Parking Spot:**

- A user opens the app to locate available parking spaces within a specific radius. The app displays nearby spaces shared by other users, including details such as size, cost (if any), and estimated walking distance.

2. Sharing a Parking Spot:

- A resident or business updates the app to mark their parking space as available. Other users in the vicinity are notified and can reserve or directly navigate to the spot.

3. Community Features:

- Users rate and review shared parking spots, contributing to a reputation system that helps identify reliable contributors.

This project combines technical innovation and social collaboration to create a scalable and user-friendly solution for urban parking challenges