PARKING MANAGEMENT SYSTEM

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Problem Statement

To design Parking Management System , a web application to solve the traffic problems in the city

Abstract

Due to the proliferation in the number of vehicles on the road, traffic problems are bound to exist. This is due to the fact that the current transportation infrastructure and car park facility developed are unable to cope with the influx of vehicles on the road.

To alleviate the aforementioned problems, we are developing a parking management system . Parking Management System is a web app built using MERN stack . This will provide users with a better interactive UI. The user data will be saved in the database once registered. This parking management system will help patrons to easily locate and secure a vacant parking space at any car park deemed convenient to them.If the slot is booked then patron will be redirected to some nearby parking place in the same area.Booking charges can be done prior while will help to solve the problem of cash on delivery. If patrons cancels his/her booking refund will be provided by deducting some cancelation charges. So this web app will help to reduce major traffic problems in the city.

Aims

- To solve the traffic problems at parking areas.
- To save the driver’s time.
- To ensure cashless transactions at parking areas
- To suggest alternate parking locations when parking space at desired location is not available.

Objectives

Designing the web app which will ensure following

- Booking a parking space prior to visiting that place will help to reduce the traffic problems at parking areas.
- As booking will be done prior the driver won't need to spend his/her time in searching for the parking space . So this will help to save the driver's time.
- Online payments will help to ensure cashless transactions at parking space and also solve the problem of cash on delivery. This can be achieved by using existing paytm API which will help us to do online transactions.
- If the parking space is not available in a particular area, the app will suggest the user some nearby parking location and will redirect the user to that location using google maps.

Functional Requirements

Account Creation: The users should be able to create an account on the website, they can be an owner or a user.

Renting parking space : The owners of the parking space should be able to update the availability of the space.

Getting the parking space: The user should be able to enter the location and see if there are any available spots for parking and book the space.

Suggesting alternative spots : If a particular space is unavailable the web app should be able to suggest another space which is available nearby.

Cashless transactions : The user should be able to book a space by completing an online transaction.

Summary About Project Development

Steps:

1. Requirement analysis: In the first phase, the requirements will be thoroughly documented and understood so that we don't need to go back and forth while developing.

2. Design: The design phase would consist of Frontend and Backend design.
The frontend part will involve the design of the user interface.The backend part will involve database designing and building the ER diagram.

3. Implementation: Implementation phase would involve the final coding that is in the designing and development phase. We have chosen to use MERN Stack,MongoDB

for database, Express for routing, React for frontend and Node for backend which is a Javascript Stack as it is an easier and provides faster deployment of full-stack web applications.

4. Testing: The performance of each existing function as well as additional functionality will be done manually by us and by some fiat users. Auto Testing tools can be used to test the individual code.

5.Deployment : After completion of this phase, the current version of the product working would be enhanced and upgraded up to the final system product.