ABSTRACT

Our project Motobon is an advanced software solution designed to streamline and enhance the process of renting vehicles. It consists of two modules: Admin and User. It is a standalone system which can be used with valid login credentials. The Admin can use valid login credentials which is obtained after a successful registration to login into his/her profile. Same is the process for User as well. The Admin can use a variety of features which includes add, delete, update bikes and view user complaints. The User can search the bike and view the details and rent it. The User can also register complaints of the bike. Overall, our project Motobon optimizes the rental process, providing a user-friendly experience for customers while enhancing the operational efficiency of rental agencies.

INTRODUCTION

About the Project

Our bike rental website project aims to deliver a seamless, efficient, and user-friendly platform for customers to rent vehicles online. The website integrates a comprehensive array of functionalities to elevate the user experience, making it an ideal choice for both rental agencies and their customers.

The platform offers an intuitive browsing experience, allowing users to explore a diverse selection of vehicles. Each bike listing provides detailed information, such as model specifications, rental rates, and availability status, accompanied by high-quality images. This helps users make well-informed decisions when choosing a rental bike.

A standout feature of the website is its real-time availability, which ensures that customers can check and book bikes confidently, knowing the information is up-to-date. Once a bike is selected, instant booking confirmations remove any uncertainty about availability.

Secure payment processing is another critical aspect, enhancing user convenience and trust. The platform supports various payment methods, including credit and debit cards, digital wallets, and bank transfers, through secure gateways that protect users' financial information.

The website's design prioritizes accessibility and convenience. It is available 24/7, allowing customers to rent bikes at any time and from any location, whether they are at home or on the go. Its mobile-friendly design ensures a smooth experience across smartphones, tablets, and desktops.

By transitioning the rental process online, the platform saves valuable time and effort for users, eliminating the need for physical visits to rental offices. This streamlined process allows users to complete reservations quickly and easily.

From a cost perspective, the online platform significantly reduces operational expenses for rental agencies. With lower overhead costs associated with maintaining physical rental offices, resources can be better allocated to bike maintenance and customer service. These savings often translate into more competitive rental prices for customers, making the service more affordable.

Additionally, the website can easily implement promotional offers and discounts to attract more customers and enhance loyalty. Enhanced customer support features, such as a comprehensive help desk, FAQ section, live chat, and support tickets, ensure that users have access to assistance when needed, further improving their experience.

In summary, our bike rental website simplifies the rental process, providing an accessible, efficient, and cost-effective solution that benefits both customers and rental services. It combines convenience, security, and user-friendly features to revolutionize the bike rental industry.

SYSTEM ANALYSIS

INTRODUCTION TO SYSTEM ANALYSIS

System Analysis is the first stage according to System Development Life Cycle model. This System Analysis is a process that starts with the analyst. Analysis is a detailed study of the various operations performed by a system and their relationships within and outside the system. One aspect of analysis is defining the boundaries of the system and determining whether or not a candidate should consider other related systems. During analysis, data is collected from the available files, decision points, and transactions handled by the present system. Logical system models and tools are used in analysis. System analysis is an important phase of any system development process. The system is studied to the minute details and analyzed. It is a problem-solving technique that improves the system and ensures that all the components of the system work efficiently to accomplish their purpose. The system analyst plays the role of an interrogator and dwells deep in to the working of the present system. They can be responsible for generating documentation such as flowcharts, collecting and analyzing requirements, helping in software selection, and monitoring systems once they're in place. System analysis is a method of figuring out the basic elements of a project and deciding how to combine them in the best way to solve a problem. In analysis, a detailed study of these operations performed by a system and their relationships within and outside the system is done.

EXISTING SYSTEM

In the present system, many travelers take renting a bike for granted especially during the pandemic when isolation is a priority. Customers prefer convenient and timely service, but it’s not uncommon for bike rentals to lag. Roughly speaking, vehicle pick-ups delay every third time. Considering the tight competition in this business landscape, bike rental services can’t fail to satisfy their customers. The user may not get desired information and maybe misguided as well. Existing system takes too much time and effort.

Limitations of Existing System

- It takes lot of time to access information.

- It sometimes leads to wrong information and thus mislead us.
- Lack of security.
- Availability and Location Constrains.
- Hidden charges.
- Limited vehicle choices.
- Complex rental agreements
- Time constrains.

PROPOSED SYSTEM

In this system, User can rent the bike whenever they need from their device. It is a standalone system that is flexible and secured to use. The best feature of this application is that it does not take a lot of time in finding the information which is being asked on the urgent basis. Proposed system is highly automated and just need some buttons to be pushed in order to get the work done urgently. The proposed project is a smart online bike rental system that provides user an easy way of renting a bike as per bike's specification and features. This is a web-based application that overcomes the issue of managing and renting bikes according to user's choice or demands.. Hence this project offers an effective solution where users can view a bike and rent it for period of time.

Advantages of Proposed System:

- No maintenance hassles.
- Environmental Benefits.
- Access to newer models.
- Cost-effective
- Flexibility

Features of Proposed System

- This Motobon bike rental system reduces time consumption for rent a bike. It gives the advantage of booking appointment from home.
- It is a standalone system which can be used by both admin and user with valid login credentials.

- It keeps track of vehicle availability

REQUIREMENT SPECIFICATIONS

Hardware Requirements

Processor	:	Intel core i7
Processor speed	:	3GHz or above
RAM	:	3GB or above
Hard Disk Capacity	:	1TB
Keyboard	:	Multimedia Keyboard
Mouse	:	Standard
USB	:	2.0 & 3.0

Software Requirements

Operating System	:	Windows 11
Front End	:	REACT
Backend	:	Node JS
Language	:	JavaScript
Tools used	:	Visual Studio Code
Database	:	MySQL

Functional Requirements

A Functional Requirement (FR) is a description of the service that the software must offer. It describes a software system or its component. A function is nothing but inputs to the software system, its behavior and outputs. It can be a calculation, data manipulation, business process, user interaction, or any other specific functionality which defines what function a system is likely to perform. Functional Requirements are also called Functional Specification.

ADMIN MODULE

The admin module allows admin to login and view the details of users registered in the respective modules. This also allows the admin to use a variety of features which includes to add, delete, update, view rented bikes, view user complaints and along with the ability to register, log in, and log out. First, admin will be visiting the home page. There is a navigation bar at the top which shows the login for admin and users. The admin should click the login button and give the admin credentials. The admin successfully login into his/her profile and he/she can view the details of registered users.

FN 1: Login

It allows registered applicant to login with the given user id and password.

Input: Admin Username and Password

Output: Login Successful

FN 2: Add bike

The admin can only add bikes.

Input: Bike Name, Bike registration number, Bike category, Seats, Fuel Type, Price details.

Output: Registered Successfully.

FN 3: Delete Bike

The admin can only delete Bikes.

Input: Bike Id

Output: Deleted Successfully

FN 4: Update Bike

The admin can only update Bikes.

Input: Bike Name, Bike registration number, Bike category, Seats, Fuel Type, Price details.

Output: Updated Successfully.

FN 5: View User Complaints

The admin can view user complaints.

Output: Can access details of registered user/bike details.

FN 6: View Rented bikes

The admin can view rented bikes.

Output: Can access details of registered users who have rented bikes.

USER MODULE

User module enables the users to login and make use of the features provided by the Application. The users, upon opening the website is first led to the homepage that contains the options to sign in and login on the navigation bar. User can directly click the login option from the navigation bar of the homepage and log in using the registered email ID and password. The User module can search the bike and view the bike details.

FN 1: Login

It allows registered applicant to login with the given user id and password.

Input : Username and password.

Output : Login successfully.

FN 2: Rent Bike

Users can Rent the Bike from the bike list.

Input : Bike name, Bike Registration, Seat, Fuel, Price.

Output : The user can access the following bike only if it is available.

FN 3: Search

It allows users to search any bike by required specification.

Input: Bike name (any specification)

Output: The details of the bike he/she searched will be shown.

FN 4: Register a complaint

The user can register a complain about the bike if required.

Input: User name, User email, Subject, Vehicle number, Complaints

Output: Complaint registered successfully

FN 5: Book Ride

The user can book ride

Input: User name, User email, Bike name, Bike price

Output: successfully booked

Non-Functional Requirements

In systems development, non-functional requirements (NFRs) specify criteria to judge the operation of a system, rather than its specific behaviors. These requirements are crucial for ensuring the system's overall effectiveness and user satisfaction. Here are the key non-functional requirements for our bike rental website:

Usability

Usability defines how easy it is for users to learn and operate the system. The platform is designed to be intuitive and user-friendly, enabling users to navigate and perform tasks with minimal effort. Key aspects include:

- **Ease of Learning:** New users should be able to quickly understand how to use the platform without extensive training or help.
- **Efficiency of Use:** The average time it takes for users to accomplish their goals should be minimized. Users should be able to complete multiple tasks efficiently without requiring external help.
- **Error Reduction:** The system should be designed to minimize user errors, and any errors that do occur should be easily correctable.
- **User Satisfaction:** The overall experience should be pleasant and satisfying, encouraging repeat use and positive feedback.

Authenticity

The system ensures authenticity by allowing only users with valid credentials to log in. This includes:

- **User Authentication:** Only users with a valid username and password can access the application. The system should verify credentials securely to prevent unauthorized access.
- **Session Management:** Securely manage user sessions to ensure that only authenticated users maintain access during their session duration.

Data Integrity

Data integrity ensures that the data stored and processed by the system is accurate and consistent. This involves:

- **Accurate Data Entry:** The system should validate data upon entry to ensure accuracy and consistency.
- **Data Consistency:** Across all modules, data should remain consistent, with any updates or changes reflecting accurately throughout the system.
- Error Handling: Mechanisms to detect and correct data corruption or anomalies.

Performance

Performance ensures the system operates efficiently under various conditions. Key performance metrics include:

- **Response Time:** The system should maintain a low response time, ensuring quick loading and interaction times.
- **High Utilization:** Efficient use of system resources, maintaining high levels of performance even under peak load conditions.
- **Fast Throughput:** The ability to process a large number of transactions in a given timeframe without performance degradation.

Availability

Availability ensures the system is accessible whenever needed. This includes:

- **Uptime:** The system should be available 24/7, with minimal downtime for maintenance.
- **Reliability:** The system should consistently perform well and be dependable, ensuring that users can access the application at any time without unexpected disruptions.

Security

Security ensures that data is protected and access is controlled. Key security aspects include:

- **Data Protection:** User data should be securely stored in the database, with encryption and other security measures in place to protect against breaches.
- **Access Control:** Only authorized users should have access to specific data and functionalities within the system.
- **Security Protocols:** Implementation of industry-standard security protocols to protect data during transmission and storage, including SSL/TLS for data in transit and encryption for data at rest.

By addressing these non-functional requirements, our bike rental website aims to provide a reliable, efficient, and user-friendly platform that meets the needs and expectations of both users and administrators.