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Faculty of Engineering & Information Technology

Department of Computer Engineering

Software Graduation Project 1

ZOOMCARZ



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Disclaimer Statement

This graduation project, entitled “ZoomCarz”, was developed for academic and educational purposes as part of the requirements for obtaining a bachelor's degree in Computer Engineering / Information Technology.

The system was designed and implemented to demonstrate the application of software engineering principles, web and mobile development technologies, database management, real-time communication, online payment integration, and artificial intelligence techniques within a unified automotive platform.

All names, images, vehicle information, user accounts, locations, prices, and transactions presented in the system are used solely for demonstration, testing, and evaluation purposes unless otherwise stated. Any resemblance to actual persons, businesses, or events is purely coincidental.

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This project is not intended to be considered a fully deployed commercial product. Any future commercial deployment would require additional security assessments, legal compliance reviews, privacy policies, and operational validations.

The authors and the university assume no responsibility for any misuse of the information, software, or concepts presented in this project outside its intended academic context.

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Abstract

ZoomCarz is a comprehensive vehicle rental and purchasing platform designed to simplify and modernize the process of managing, renting, buying, and delivering vehicles through a unified digital system. The project was developed to address the limitations of traditional vehicle rental and sales services by providing an integrated solution for customers, dealers, delivery staff, and system administrators.

The system was implemented using Flutter for cross-platform web and mobile development, Node.js and Express.js for backend services, PostgreSQL as the database management system, and Socket.IO for real-time communication. The platform includes vehicle rental and purchasing modules, dealer management, delivery tracking with Google Maps integration, secure authentication and authorization, online payment integration through Stripe and PayPal, real-time notifications, live chat functionality, AI-powered services through the OpenAI API, and a Super Admin dashboard for centralized platform management. API testing, validation, and documentation were performed using Apidog to ensure reliability and maintainability.

The developed platform successfully provides a responsive and user-friendly environment that supports multiple user roles and enables real-time synchronization of data across the system. The implementation improves operational efficiency, enhances user experience, and provides a scalable architecture capable of supporting future expansions and advanced intelligent services. Testing results demonstrated the successful operation of the major system functionalities, including vehicle management, payment processing, communication services, location tracking, AI-assisted features, and administrative control, indicating that the proposed solution effectively satisfies the intended project objectives.

Chapter 1: Introduction

1.1 General Background

The rapid advancement of information technology and digital transformation has significantly influenced various industries, including the automotive sector. In recent years, the increasing reliance on online services has changed the way customers search for, rent, and purchase vehicles. Traditional vehicle rental and purchasing processes often involve manual procedures, fragmented services, and limited communication channels, resulting in inefficiencies and a less convenient user experience.

With the growing demand for digital solutions, businesses are increasingly adopting smart platforms that provide users with easy access to services through web and mobile applications. Such platforms enable customers to browse available vehicles, compare options, complete transactions electronically, and communicate directly with service providers. At the same time, dealers and business owners benefit from improved inventory management, customer interaction, and operational efficiency.

The integration of modern technologies such as cloud-based systems, online payment gateways, real-time communication tools, and artificial intelligence has further enhanced the capabilities of automotive service platforms. These technologies allow businesses to offer personalized recommendations, automate processes, improve customer satisfaction, and support data-driven decision-making.

To address the limitations of traditional automotive service systems, the ZoomCarz platform was developed as a comprehensive solution that combines vehicle rental, vehicle purchasing, dealer management, delivery services, electronic payments, real-time communication, and artificial intelligence features within a single integrated platform. The system is designed to provide a seamless, secure, and user-friendly experience for different types of users while supporting future scalability and technological advancements.

1.2 Objectives of the Work

The main objective of the ZoomCarz project is to develop a comprehensive and intelligent platform that simplifies vehicle rental and purchasing processes through a unified web and mobile application. The system aims to provide users with a convenient, secure, and efficient environment where they can access various automotive services from a single platform without the need to use multiple applications or systems.

Another important objective of the project is to improve the overall user experience by providing advanced search and filtering capabilities, detailed vehicle information, simplified reservation and purchasing procedures, and easy access to personalized services. The platform is designed to reduce the time and effort required for users to find suitable vehicles and complete their transactions efficiently.

The project also aims to support dealers by providing effective management tools that enable them to add, update, and manage vehicle inventories, monitor reservations and purchase requests, and communicate directly with customers. These capabilities help improve operational efficiency and facilitate the management of automotive services.

Furthermore, ZoomCarz seeks to enhance communication and service delivery through the integration of real-time messaging, notification systems, and delivery management functionalities. These features allow users and service providers to stay informed about reservations, orders, and system updates in a timely manner.

In addition, the project aims to utilize modern artificial intelligence technologies to provide intelligent assistance, vehicle recommendations, and advanced vehicle customization features through the AI Assistant and AI Car Editor. These technologies contribute to creating a smarter and more interactive user experience.

Finally, the project aims to develop a scalable and maintainable software solution that supports future enhancements, accommodates increasing numbers of users, and can be expanded to meet evolving business and technological requirements.

1.3 Significance of the Work

The importance of the ZoomCarz project stems from the increasing demand for digital automotive services and the growing need for integrated solutions that combine multiple services within a single platform. Many existing systems focus on either vehicle rental or vehicle sales separately, requiring users to switch between different applications and services to fulfill their needs.

ZoomCarz addresses this challenge by providing a centralized platform that combines vehicle rental, vehicle purchasing, dealer management, delivery services, online payments, real-time communication, and artificial intelligence features. This integration contributes to improving user experience, increasing operational efficiency, and reducing administrative complexity for both customers and service providers.

Furthermore, the project leverages modern technologies such as artificial intelligence, real-time communication, and electronic payment systems, which are increasingly becoming essential components of modern digital platforms. These technologies enhance service quality, improve accessibility, and support smarter decision-making processes.

1.4 Organization of the Report

This report is organized into six chapters. Chapter 1 introduces the project, including the background, objectives, significance, and overall structure of the report. Chapter 2 presents the theoretical background and reviews related concepts and existing automotive service platforms. Chapter 3 describes the methodology followed during the development process, including system design, implementation technologies, standards, and project constraints.

Chapter 4 presents the implementation results and discusses the major modules and functionalities of the ZoomCarz platform, including vehicle rental, vehicle purchasing, dealer management, delivery services, artificial intelligence features, and system administration. Chapter 5 presents the system architecture, database design, and technical implementation details. Finally, Chapter 6 summarizes the project conclusions, recommendations, future enhancements, and potential directions for further development.

Chapter 2: Theoretical Background and Previous Work

The automotive industry has experienced significant digital transformation in recent years, leading to the development of online platforms that simplify vehicle rental and purchasing processes. Traditional methods often require customers to visit multiple locations, complete manual procedures, and spend considerable time searching for suitable vehicles. As a result, modern vehicle rental and purchasing systems have emerged to provide users with convenient access to automotive services through web and mobile applications.

Vehicle rental systems allow users to search for available vehicles, apply filters, view vehicle details, and complete reservations online. Similarly, vehicle purchasing platforms enable customers to browse available cars, compare specifications, and complete purchasing procedures electronically. These systems improve accessibility, reduce processing time, and enhance customer satisfaction.

The growth of e-commerce technologies has also contributed to the adoption of secure online payment methods, allowing users to complete transactions quickly and safely. In addition, real-time communication technologies, such as instant messaging and notification systems, have become essential components of modern platforms, enabling efficient communication between customers and service providers.

Artificial intelligence has recently become an important technology in the automotive sector. AI-powered systems can provide intelligent recommendations, automate customer support, analyze user preferences, and generate enhanced digital content. These capabilities contribute to improving user experience and increasing the efficiency of service delivery.

Several existing platforms provide vehicle rental or vehicle purchasing services, including well-known systems that focus on specific aspects of the automotive market. However, many of these platforms offer limited functionality by concentrating on either vehicle rental or vehicle sales separately. In contrast, ZoomCarz combines vehicle rental, vehicle purchasing, dealer management, delivery services, online payments, real-time communication, and artificial intelligence features within a single integrated platform. This integration provides users with a comprehensive and convenient solution while improving operational efficiency for service providers.

Therefore, the theoretical concepts and previous systems reviewed in this chapter provide the foundation for understanding the design and development of the ZoomCarz platform and highlight the need for a unified, intelligent, and scalable automotive service system.

Chapter 3: Methodology

3.1 Methodology

The development of ZoomCarz followed a systematic software engineering methodology to ensure that the final product meets user requirements, maintains high quality standards, and provides a scalable and secure solution. The project was developed through several stages, including requirements gathering, system analysis, system design, implementation, testing, and deployment preparation.

During the requirements gathering phase, the needs of the different user groups, including renters, buyers, dealers, and delivery staff, were identified and analyzed. Functional and non-functional requirements were then defined to ensure that the platform would satisfy user expectations and business objectives.

In the design phase, the system architecture, database structure, user interfaces, and communication mechanisms were designed. The system was implemented using Flutter and Dart for the frontend, while Node.js and Express.js were used to develop the backend services. PostgreSQL was selected as the database management system due to its reliability and performance.

Several modules were developed, including vehicle rental management, vehicle purchasing management, dealer management, delivery management, payment processing, notifications, real-time chat, and artificial intelligence services. After implementation, extensive testing was performed to verify system functionality, usability, performance, and security.

3.2 Standards and Specifications (Codes)

The design and implementation of ZoomCarz were guided by several software engineering standards and industry best practices to ensure system quality, security, and maintainability.

The platform follows RESTful API design principles for communication between the frontend and backend systems. JSON was adopted as the standard data exchange format due to its simplicity and compatibility with modern web technologies.

For authentication and authorization, the project utilizes JWT (JSON Web Token), which provides a secure and widely accepted mechanism for user authentication and access control.

Real-time communication features were implemented using Socket.IO standards to support instant messaging and live updates between users and dealers. Secure payment processing was integrated through PayPal APIs according to the payment provider's specifications and security requirements.

The system also follows responsive design principles to ensure compatibility across different devices and screen sizes. Furthermore, software development practices such as modular architecture, version control using Git, and secure coding standards were adopted throughout the development process.

3.3 Constraints

3.3.1 Economic Constraints

The project was developed within the limitations of a graduation project budget. Therefore, open-source technologies such as Flutter, Node.js, Express.js, PostgreSQL, and GitHub were utilized to minimize development costs while maintaining high quality and performance.

3.3.2 Environmental Constraints

As a software-based solution, the project has minimal environmental impact. However, efficient programming practices were considered to reduce unnecessary resource consumption and optimize system performance.

3.3.3 Social Constraints

Since the platform handles personal information and user communications, privacy and information security were considered essential design requirements. The system was designed to provide secure user authentication and protect sensitive data.

3.3.4 Political Constraints

The project was designed to be accessible and usable by different groups of users regardless of gender, age, or background. The platform promotes equal access to transportation-related services and digital technologies.

3.3.5 Ethical Constraints

The development process respected software engineering ethics, including honesty, transparency, data privacy, intellectual property rights, and responsible use of artificial intelligence technologies. User information is protected and handled according to accepted ethical practices.

3.3.6 Health and Safety Constraints

The system was designed to provide secure online transactions and reliable communication channels to minimize risks associated with digital services. Authentication mechanisms and secure payment processing contribute to protecting users from unauthorized access and fraudulent activities.

3.3.7 Manufacturability Constraints

As a software application, the project was designed using widely available technologies and development tools, ensuring that it can be implemented, maintained, and deployed using existing computing infrastructure without requiring specialized hardware.

3.3.8 Sustainability Constraints

The platform was developed using a modular and scalable architecture that supports future upgrades and feature expansion. The selected technologies are widely adopted and continuously maintained, ensuring long-term reliability, maintainability, and sustainability of the system.

Chapter 4: Results and Discussion

This chapter presents the results obtained from the implementation and testing of the ZoomCarz platform. The developed system was evaluated to ensure that all functional and non-functional requirements were successfully achieved. The results demonstrate the effectiveness of the platform in providing vehicle rental and purchasing services through an integrated and user-friendly environment. In addition, the chapter discusses the performance of the implemented features, including user authentication, vehicle management, booking and purchasing processes, payment integration, real-time notifications, live chat functionality, and delivery tracking. The obtained results are analyzed and compared with the project objectives to assess the overall success of the system and identify areas for future enhancement.

4.1 Web and Mobile Features

ZoomCarz is a modern cross-platform application designed to work seamlessly on both web and mobile devices. The platform provides users with an intuitive and responsive interface that enables easy access to vehicle rental and purchasing services. Through its user-friendly design, secure authentication, and smooth navigation experience, users can efficiently browse vehicles, manage reservations and purchases, communicate with dealers, and access platform services anytime and anywhere.

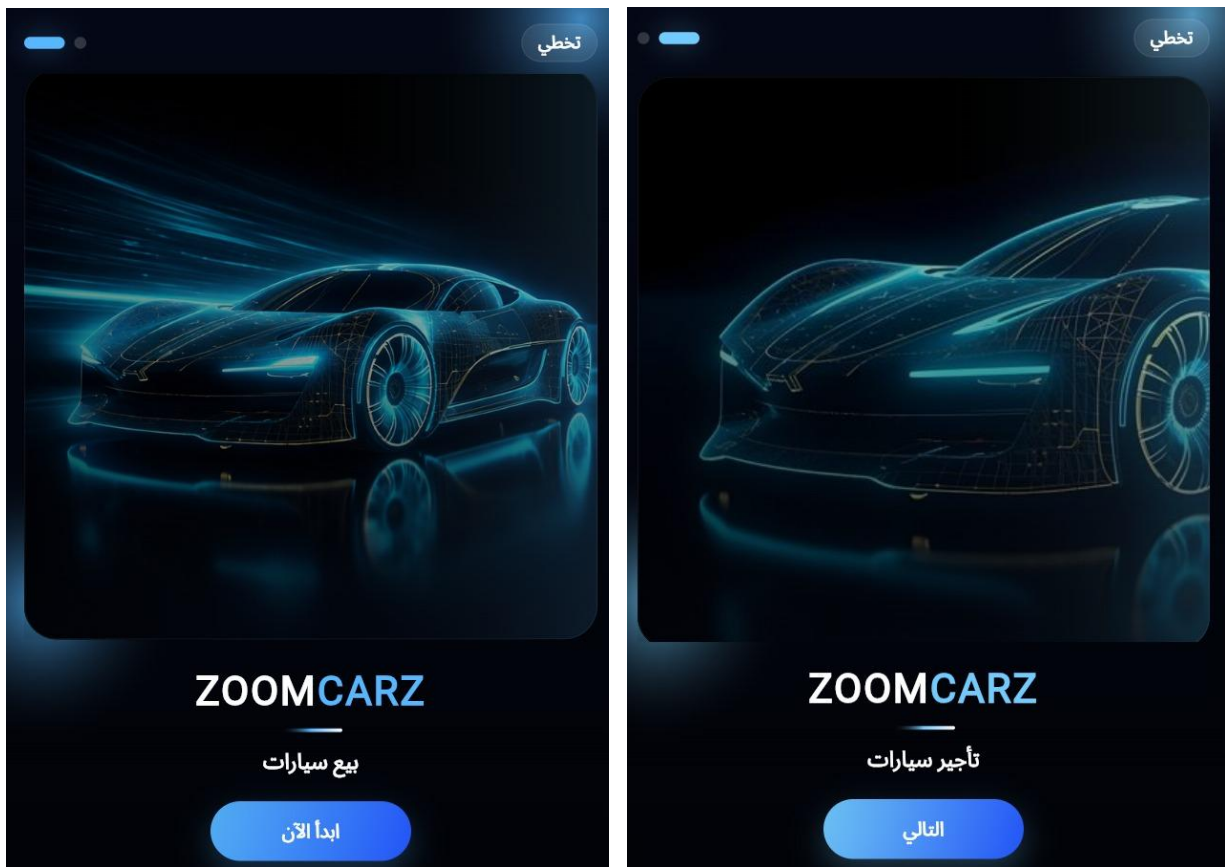


Figure 4.1 ZoomCarz Service Selection Interface

4.1.1 Common Features Among Users :

4.1.2 The user registration screen of ZoomCarz

It allows new users to create an account by providing their personal information and login credentials. The interface was designed to be user-friendly, secure, and responsive across different devices.



The image shows a user registration screen for ZoomCarz. At the top, there is a button labeled "حساب العميل" (Customer Account). Below it, a text prompt says "أنشئ حسابك للمتابعة إلى الاستئجار أو الشراء." (Create your account to follow up on rental or purchase). The main section is titled "إنشاء حساب جديد" (Create New Account) with a sub-prompt "أدخل بياناتك لتبدأ الاستئجار أو الشراء من نفس الحساب." (Enter your data to start rental or purchase from the same account). There are four input fields: a username field with the value "raghad_odeh", an email field with "raghadnayef9@gmail.com", a phone number field with "0593858911", and a password field with "raghad@23" and an eye icon for toggling visibility. Below the fields, a text note states "كلمة المرور لازم تحتوي على أحرف وأرقام، وما تكون أرقام فقط." (The password must contain letters and numbers, and not be only numbers). A large blue button labeled "إنشاء الحساب" (Create Account) is positioned below the fields. At the bottom, there is a link "أو" (or) and the text "لديك حساب بالفعل؟ دخول" (Already have an account? Login).

Figure 4.2 User Registration Screen

4.1.3 Login Screen

Login screen of the ZoomCarz platform. It allows users to securely access the system using their credentials and provides options for password recovery, guest access, and account creation. The interface was designed to be simple, responsive, and user-friendly across different devices.

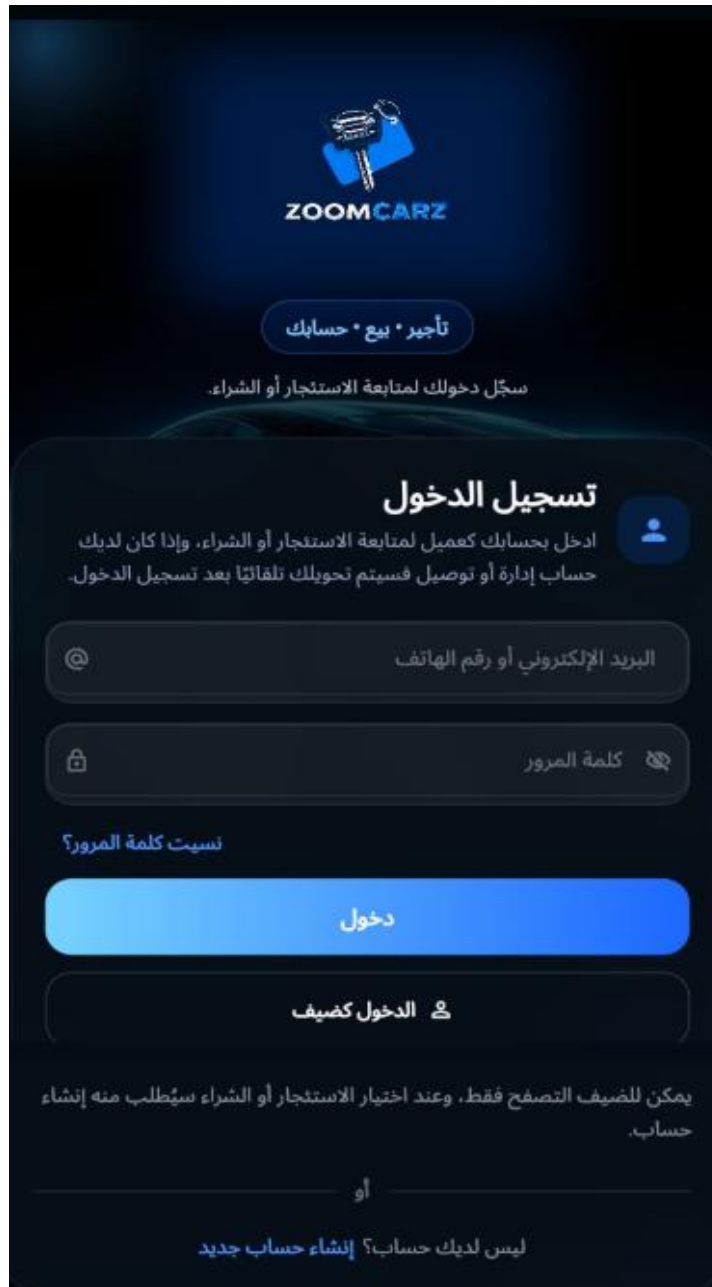


Figure 4.3 ZoomCarz Login Interface

4.1.4 User Authentication and Account Recovery

They demonstrate different scenarios, including login validation, password recovery requests, email verification using a security code, password reset procedures, and successful account access restoration. These features were implemented to enhance system security, protect user accounts, and provide a smooth and reliable authentication experience for platform users.

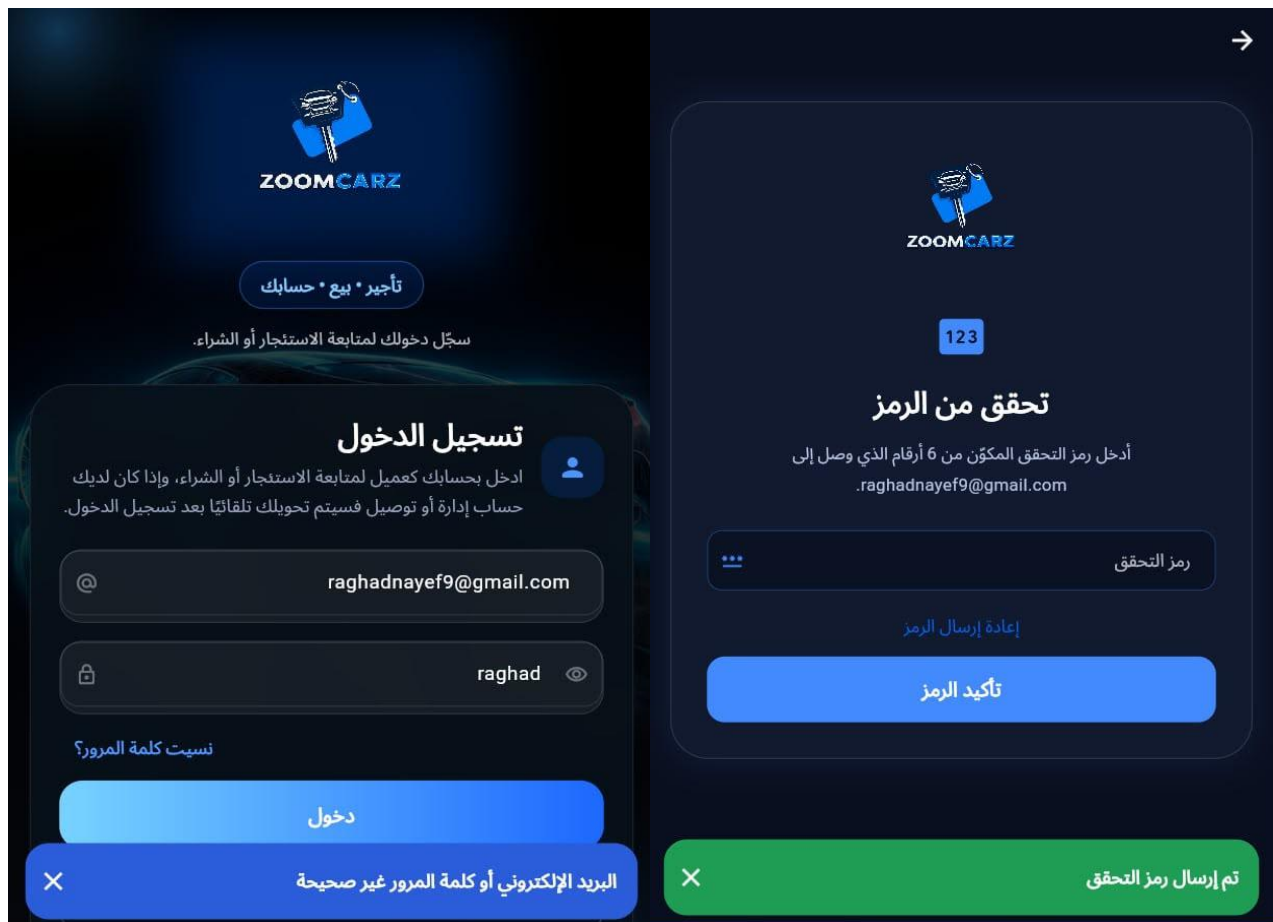


Figure 4.4 Login Validation and Email Verification Process



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حفظ كلمة المرور الجديدة

تم التحقق من الرمز بنجاح



تم تغيير كلمة المرور

يمكنك الآن العودة إلى شاشة تسجيل الدخول واستخدام كلمة المرور الجديدة.

العودة لتسجيل الدخول

تم تغيير كلمة المرور بنجاح

Figure 4.5 Password Recovery, Password Reset, and Confirmation Screens

4.2 Vehicle Rental Module

4.2.1: Service Selection Screen

The service selection screen of the ZoomCarz platform. It allows users to choose between vehicle rental and vehicle purchasing services. The interface provides a simple and clear navigation experience, enabling users to quickly access the desired service.



Figure 4.6 illustrates the service selection interface, where users can choose between vehicle rental and vehicle purchasing services within the ZoomCarz platform.

4.2.2 Vehicle Rental Home Screen

The main rental interface of the ZoomCarz platform. The screen allows users to select pickup and return dates, search for available vehicles, and apply filters to find suitable rental options. The interface was designed to provide a simple and efficient booking experience while improving accessibility and ease of use.



Figure 4.7 Vehicle Rental Home Screen

4.2.3 Featured Vehicles and Offers Section

The Featured Vehicles and Offers section provides users with a comprehensive browsing experience by presenting recommended vehicles, brand-based filtering options, and promotional offers within a unified interface. Users can explore popular rental vehicles, compare prices and specifications, and quickly access available booking options. The section also highlights seasonal discounts and special promotions, enabling users to identify cost-effective rental opportunities. By combining vehicle recommendations, search convenience, and promotional content, this module enhances user engagement, supports informed decision-making, and improves the overall efficiency of the rental process within the ZoomCarz platform.

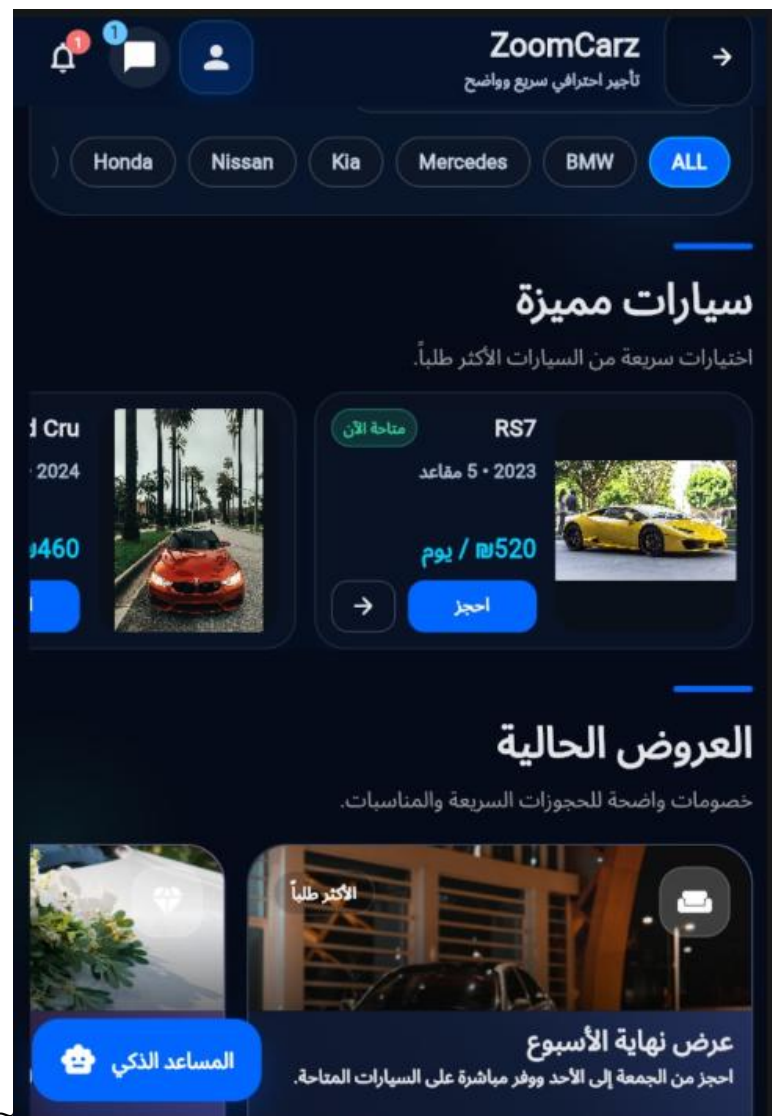


Figure 4.8 Featured Vehicles and Promotional Offers Section

4.2.4 The main rental dashboard of the ZoomCarz platform

The interface provides users with access to promotional offers, the AI Car Editor, and advanced search and filtering options. These features help users quickly find suitable vehicles, explore available offers, and access intelligent services through a single integrated interface.

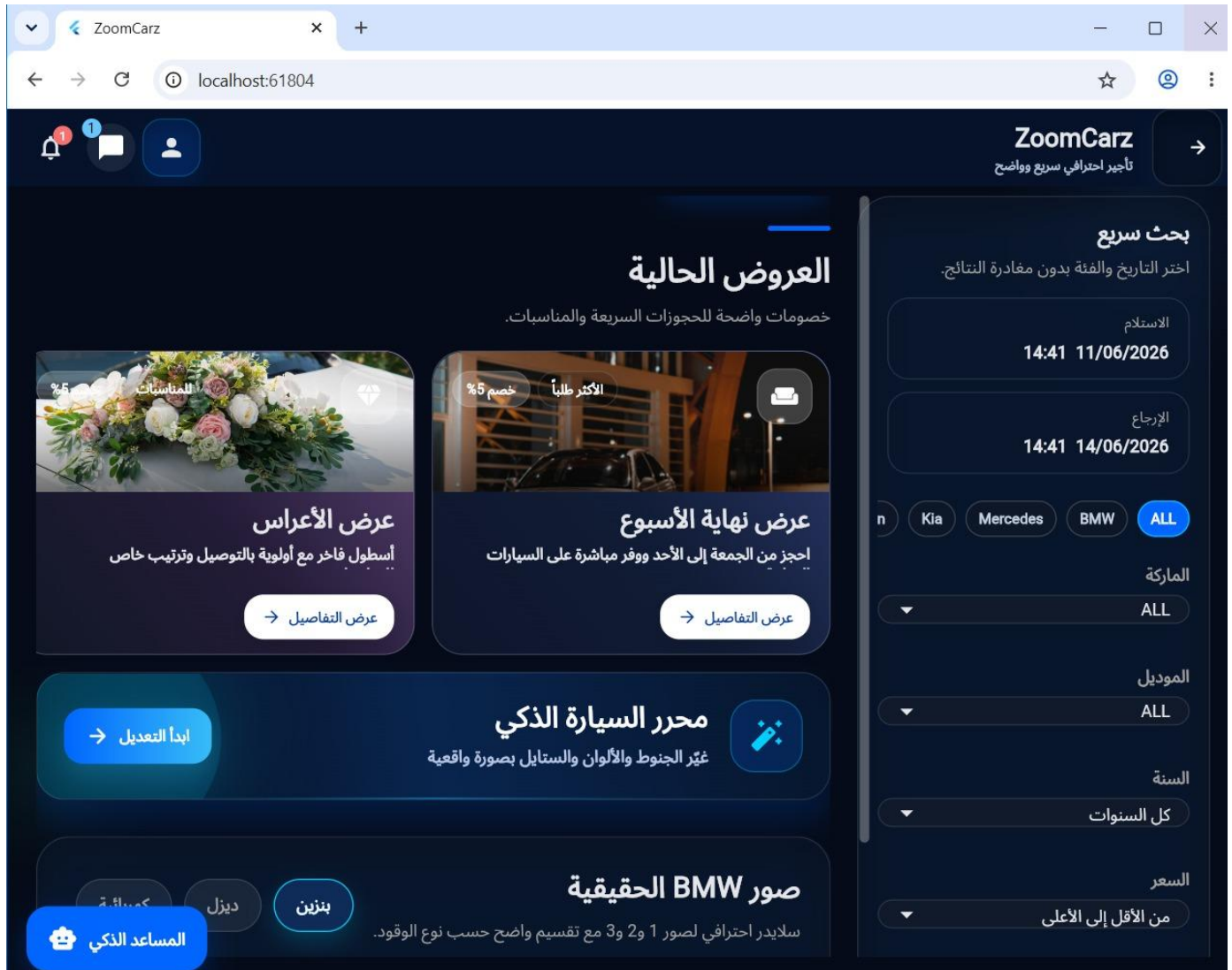


Figure 4.9 Rental Dashboard with Offers and AI Car Editor

4.2.5 Promotional Offers Section

The interface displays special rental offers for different occasions, such as weddings and travel trips, allowing users to benefit from discounts and exclusive rental packages. This feature helps attract customers and enhances the overall user experience by providing cost-saving opportunities.

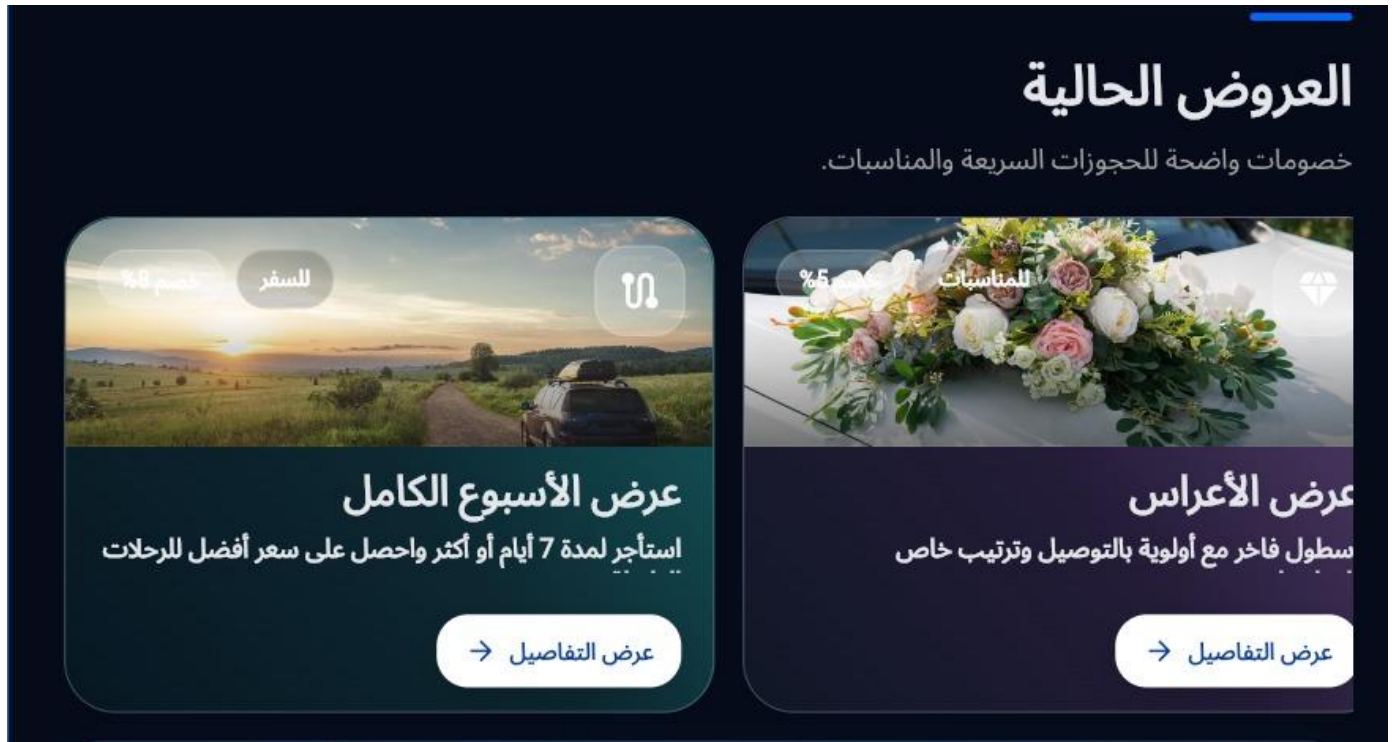


Figure 4.10 Promotional Offers Section

4.2.6 The catalog section of the ZoomCarz rental module

Users can browse available vehicles, view their specifications, and make reservations directly from the interface. The screen also provides advanced filtering options based on brand, model, year, fuel type, and price, helping users quickly find vehicles that match their preferences.

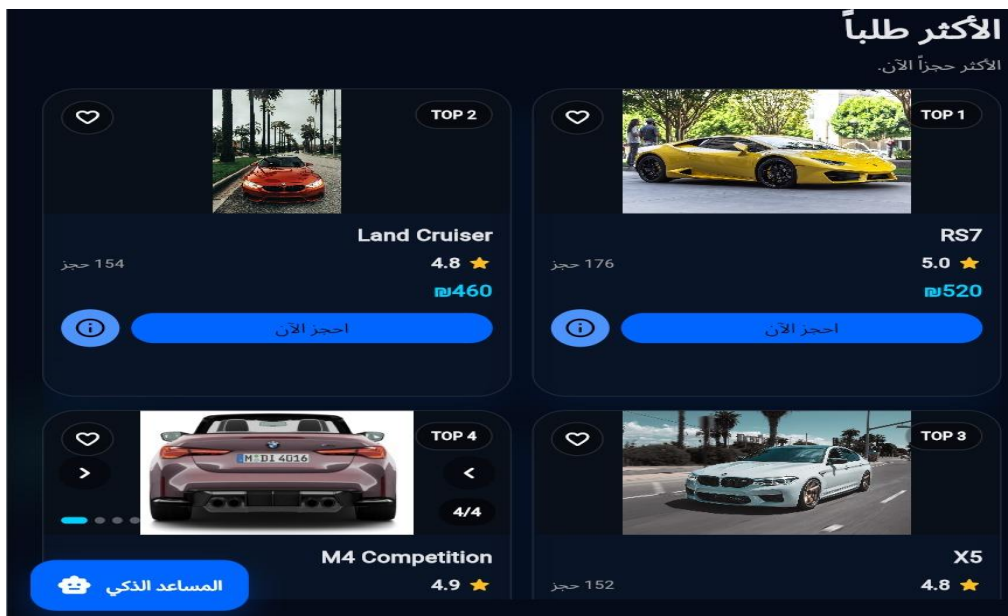
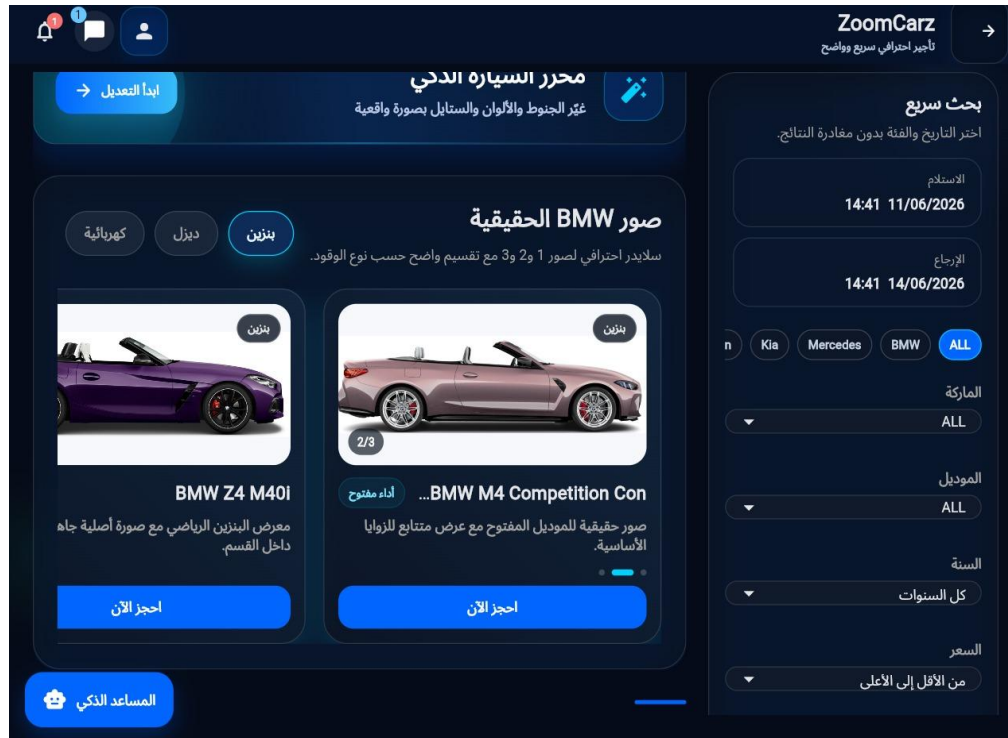


Figure 4.11 Vehicle Catalog and Advanced Filtering

4.2.7 Vehicle Accessories Catalog, Purchasing, and Advanced Filtering

Users can browse, search, and purchase a variety of vehicle accessories and enhancements through a dedicated accessories marketplace integrated into the ZoomCarz platform. The interface allows users to explore products across multiple categories, view product details, compare prices, and add items to their shopping cart. Advanced filtering options help users quickly locate suitable products based on category, price, and product type, providing a convenient and personalized shopping experience.

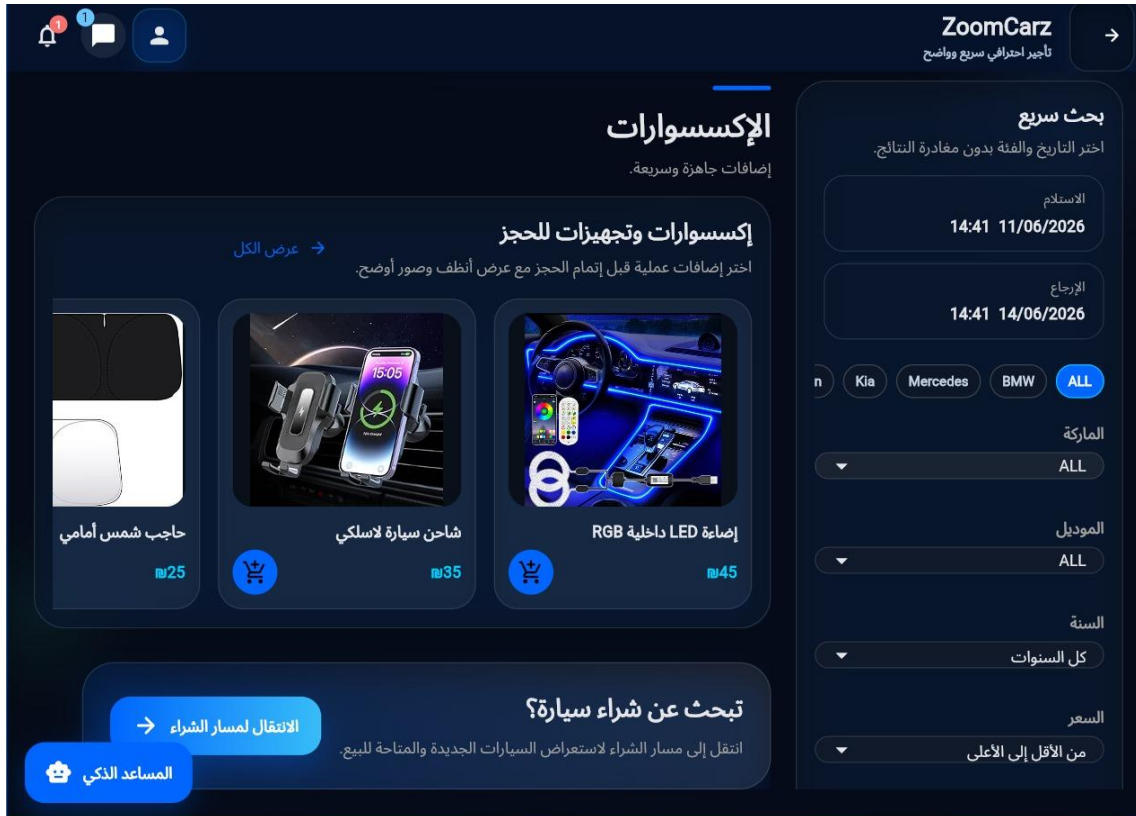


Figure 4.12 Vehicle Catalog, Accessories, and Advanced Filtering Interface

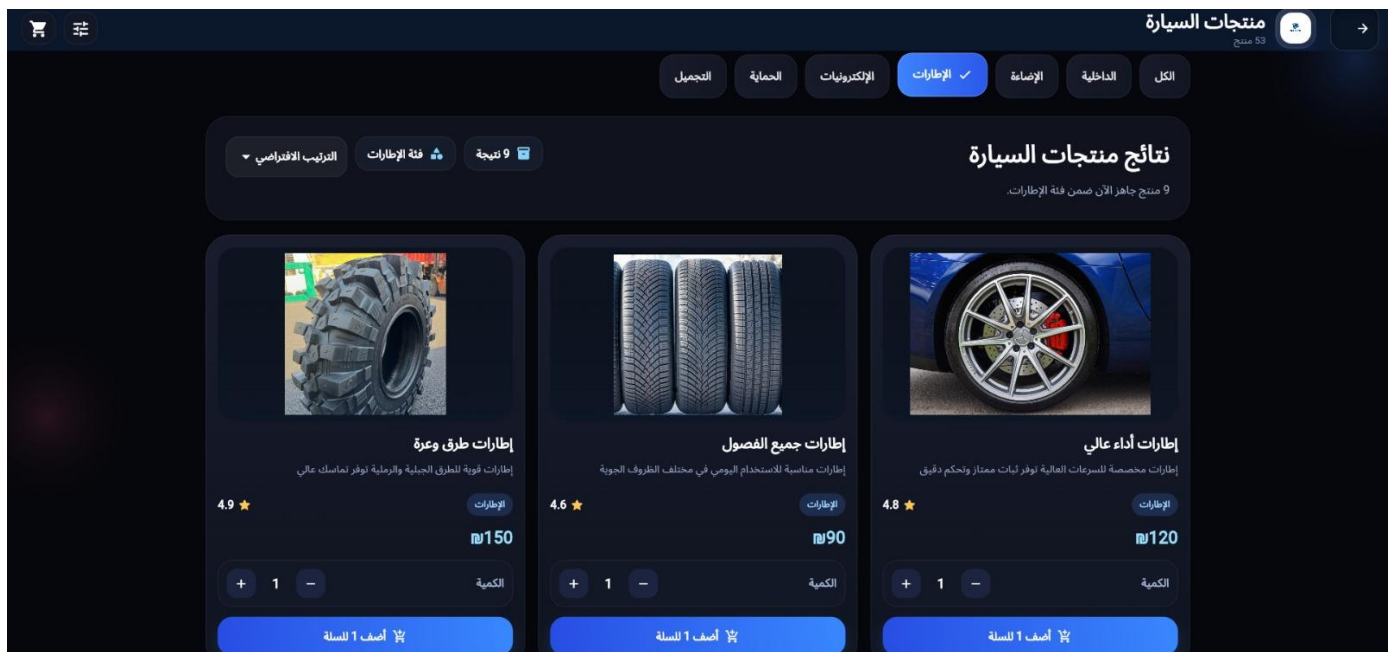
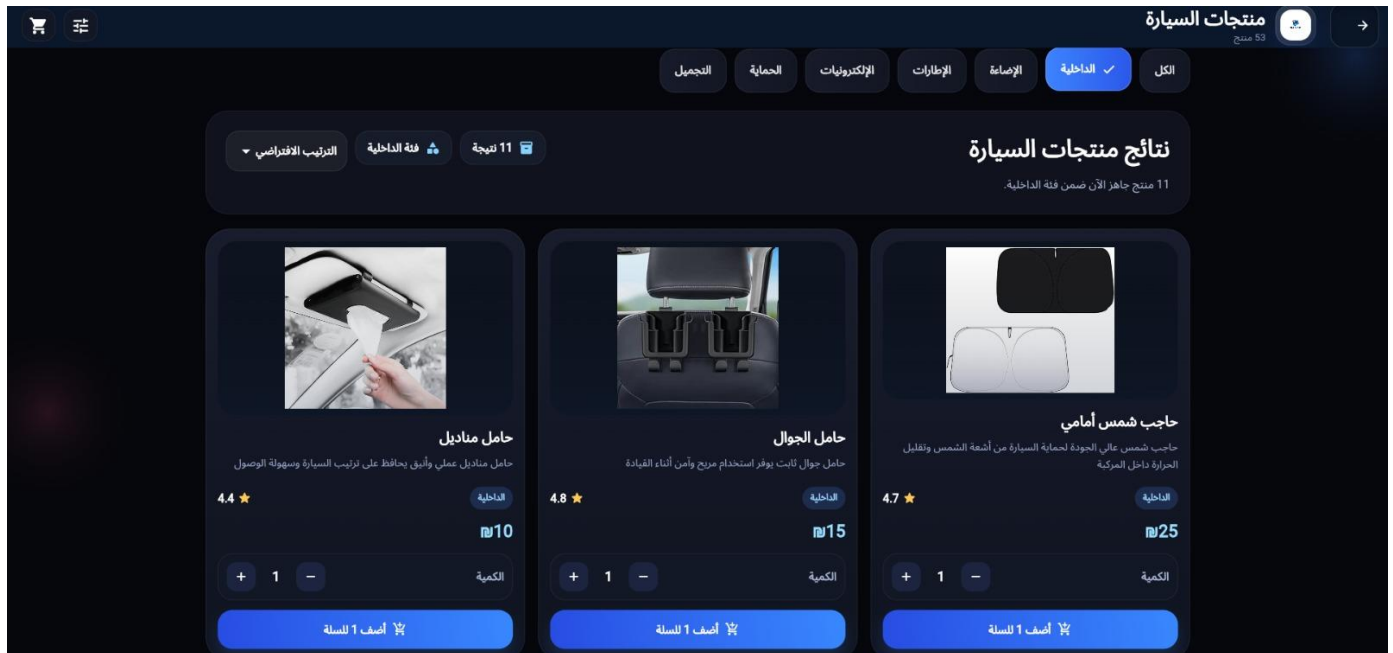


Figure 4.13 Vehicle Accessories Store Interface

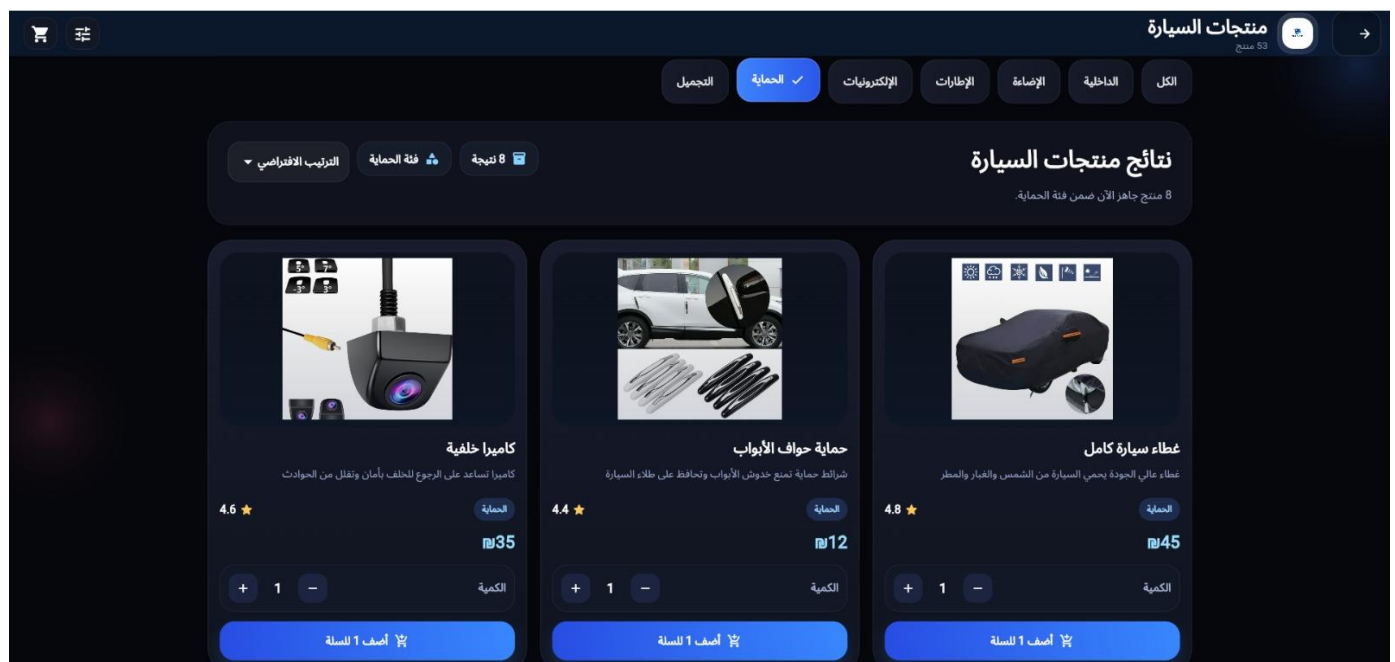
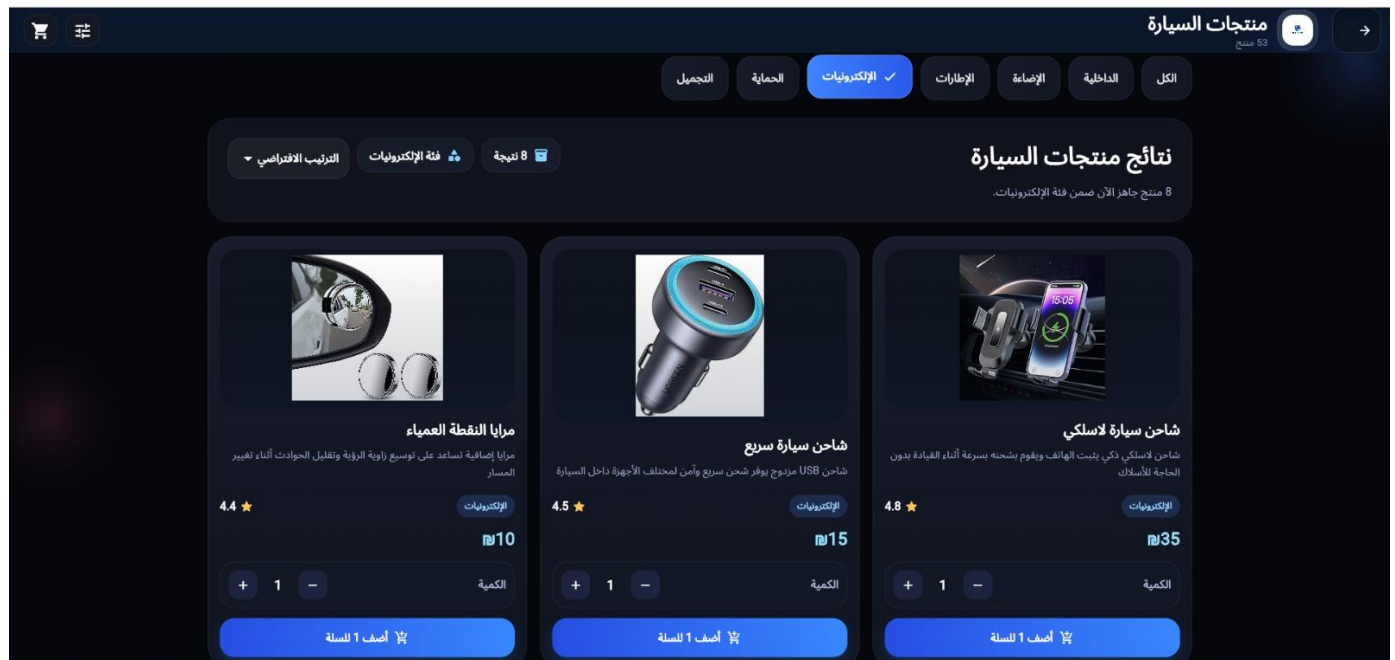


Figure 4.14 Electronics and Vehicle Protection Accessories

Figure 4.15 Vehicle Products Dashboard

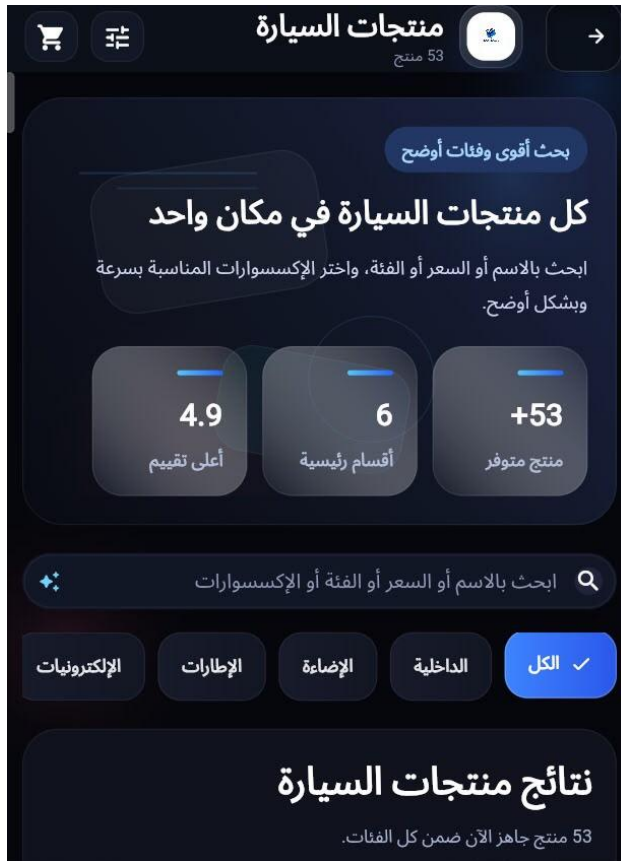


Figure 4.16 Vehicle Tire Details Screen



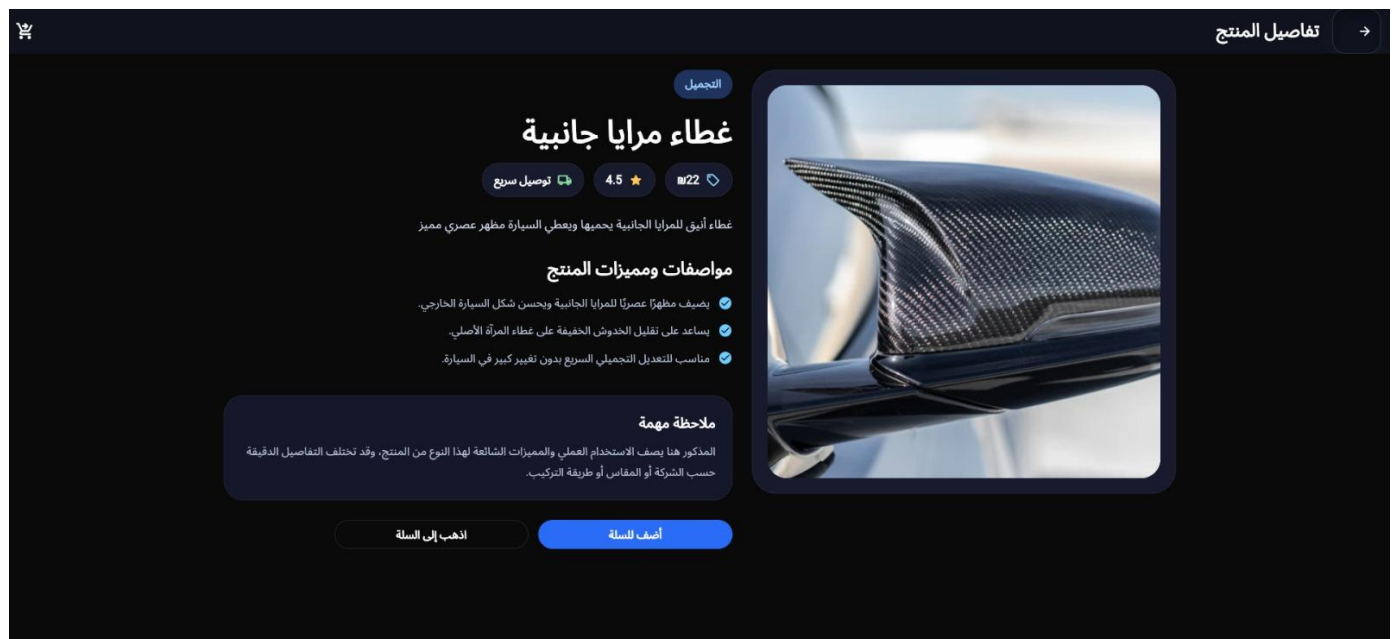
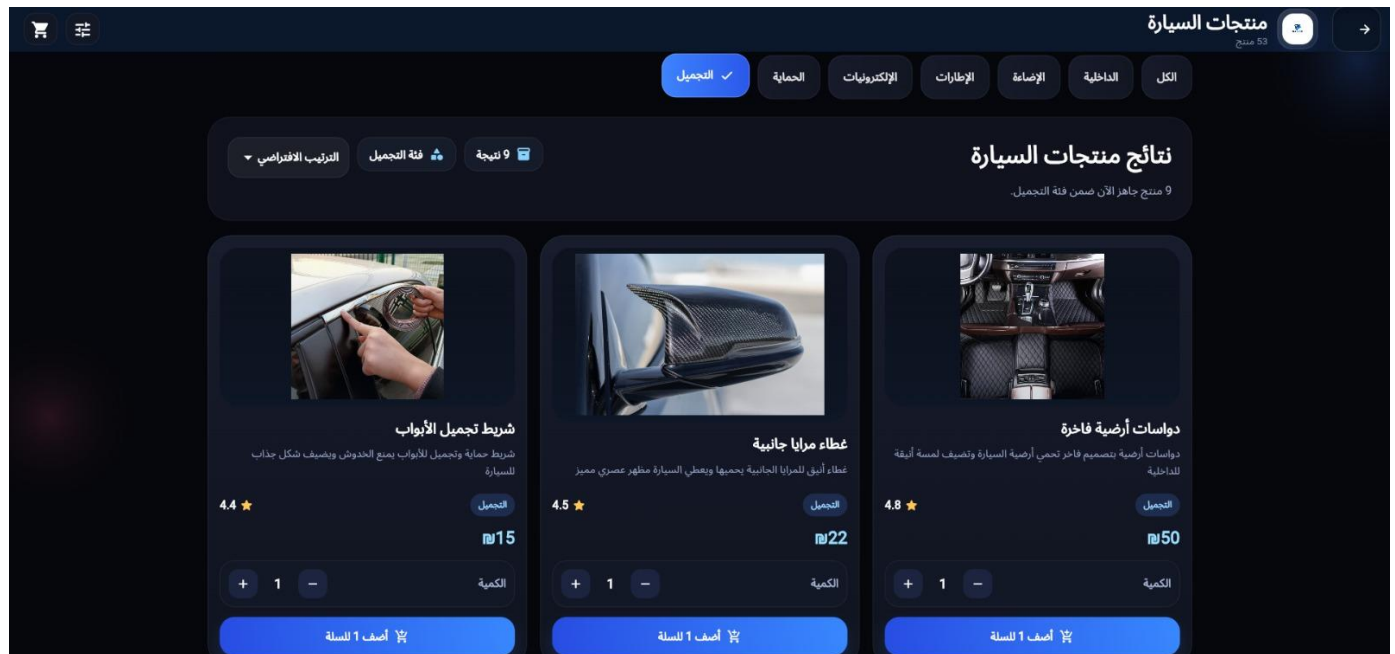


Figure 4.17 Vehicle Styling Accessories and Product Details

The accessories order completion screen, where users can provide delivery details, choose a payment method, review the order summary, and confirm their purchase through a secure checkout process.

The screenshot displays the checkout interface for an accessories order. At the top, a header bar contains the text 'إتمام طلب الإكسسوارات' (Complete Accessories Order) and a right-pointing arrow. Below this, a summary bar shows the total amount 'الإجمالي ٦٦٦', the number of items 'عدد القطع 3 قطعة', and the payment method 'طريقة الدفع الدفع عند الاستلام'. The main section is divided into three parts: 1. 'بيانات العميل' (Customer Data) with fields for 'الاسم الكامل' (Full Name) with a placeholder 'مثال: محمد أحمد', 'رقم الهاتف' (Phone Number) with a placeholder '05XXXXXXXX', and 'العنوان' (Address) with a placeholder 'المدينة، الشارع، أقرب نقطة دالة'. 2. 'طريقة الدفع' (Payment Method) with two options: 'الدفع عند الاستلام' (Cash on Delivery) with a checkmark icon and 'الدفع النقدي عند وصول طلب الإكسسوارات' (Cash payment upon receipt of the accessories order), and 'بطاقة Visa' (Visa Card) with a card icon and 'أدخل بيانات البطاقة لإكمال الدفع' (Enter card details to complete payment). A note below states 'سيتم تسجيل الطلب كطلب نقدي ويتم الدفع عند الاستلام.' (The order will be recorded as a cash order and payment will be made upon receipt). 3. 'ملخص الطلب' (Order Summary) showing '٦٦٦' for the total, '٦٦٦' for the subtotal, and '٦٦٦' for the final total, with a note '٦٦٦ عطاء مرابا جانبية 3 x' (666 side bid 3 x). At the bottom, a large blue button reads 'تأكيد طلب الإكسسوارات' (Confirm Accessories Order).

Figure 4.18 Accessories Purchase Checkout Process

The order confirmation screen displayed after completing an accessories purchase. The system confirms the successful submission of the order and provides key transaction details, including the order number, total amount, and payment method.

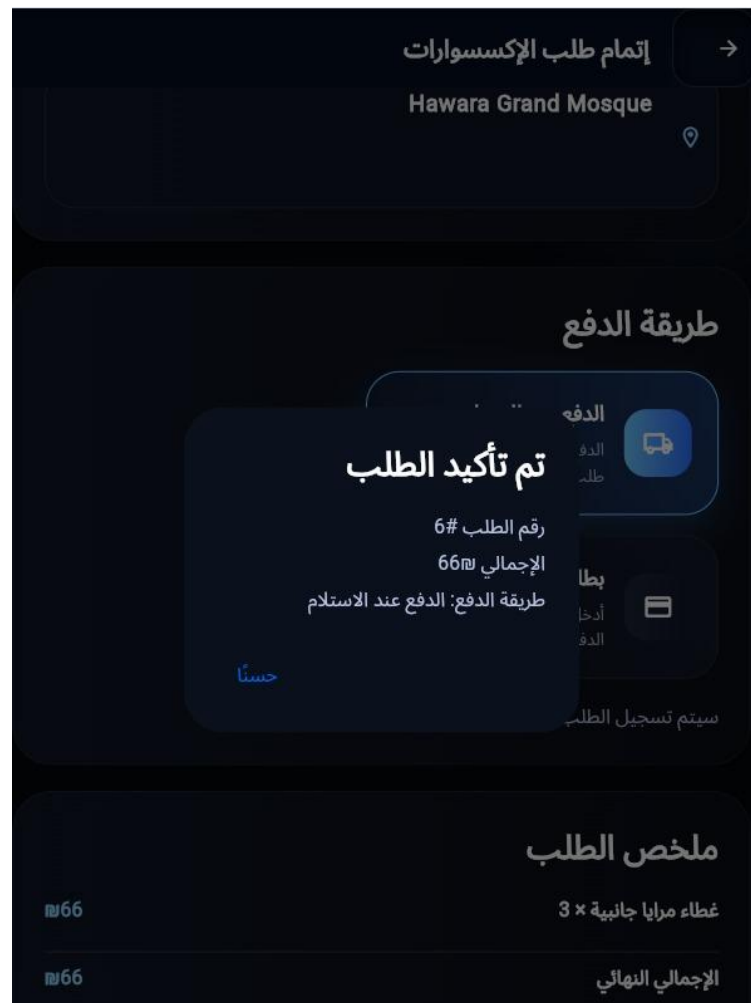


Figure 4.19 Accessories Shopping Cart Interface

4.2.8 Available Rental Vehicles Screen

The available rental vehicles screen in the ZoomCarz platform. The interface displays a collection of available vehicles along with their prices, specifications, ratings, and availability status. Users can apply various filters such as brand, model, year, price range, and vehicle condition to quickly find suitable rental options. This functionality improves the search process and helps users make informed rental decisions efficiently.

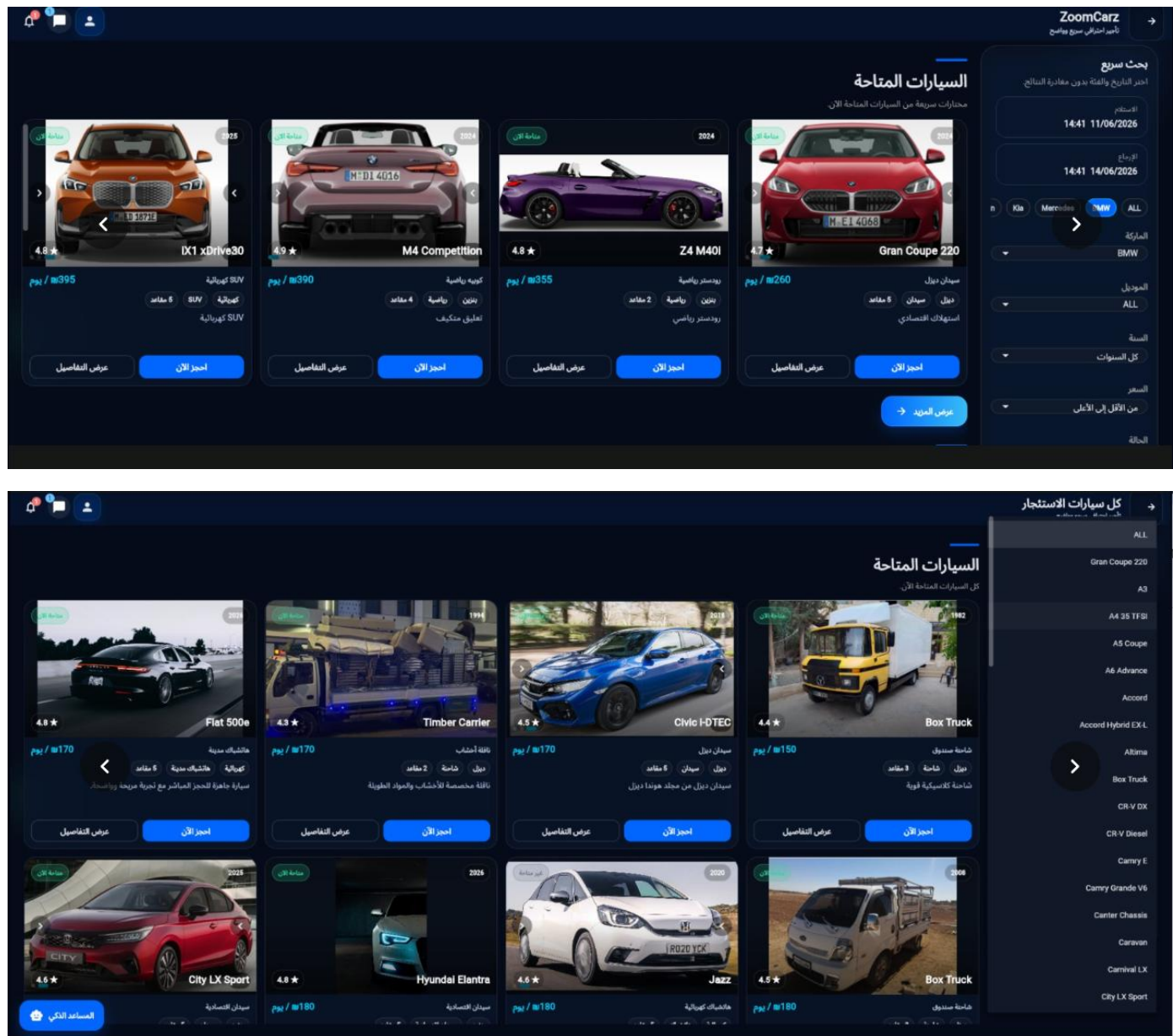


Figure 4.20 shows the available rental vehicles and search filters.

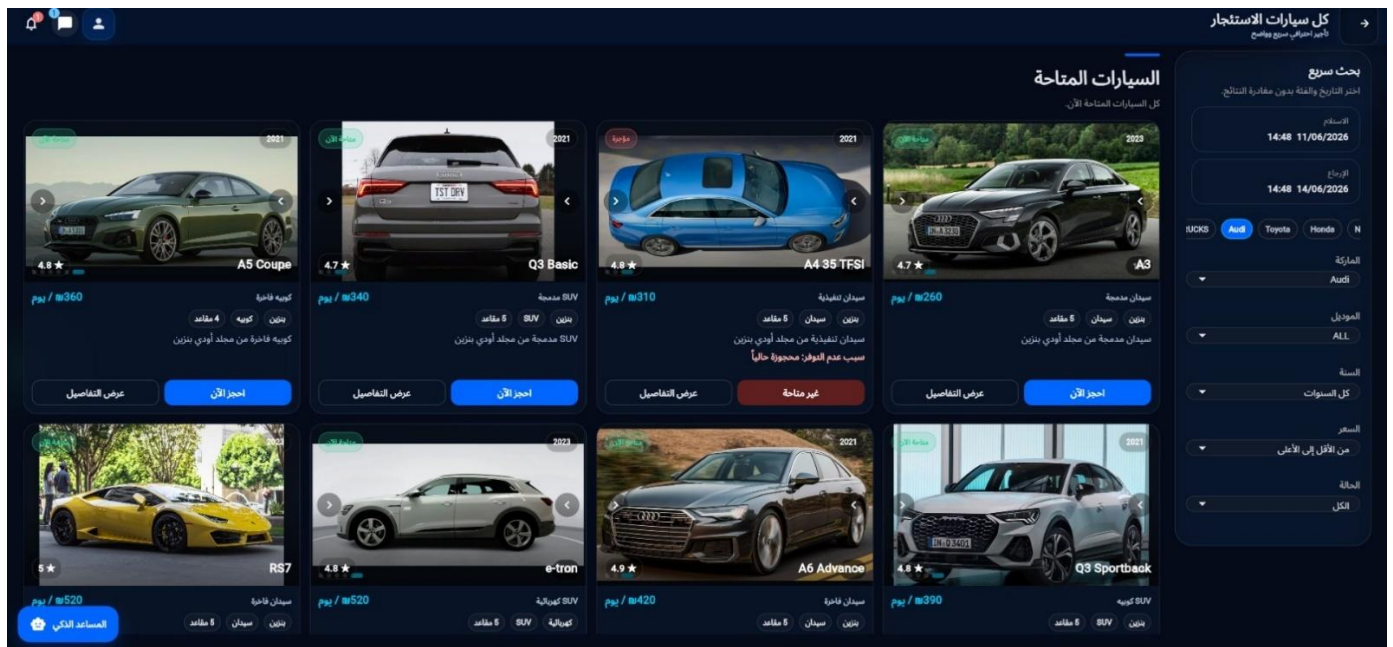
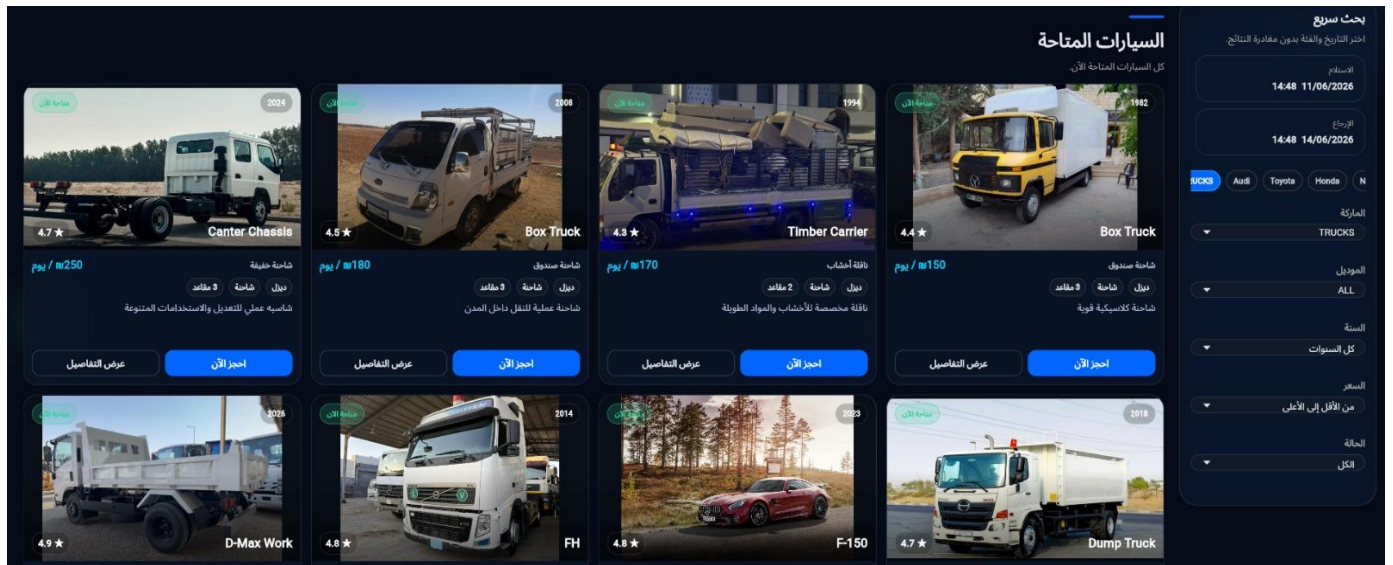


Figure 4.21 shows the rental vehicles catalog, allowing users to explore available vehicles and filter search results according to their preferences and rental requirements.

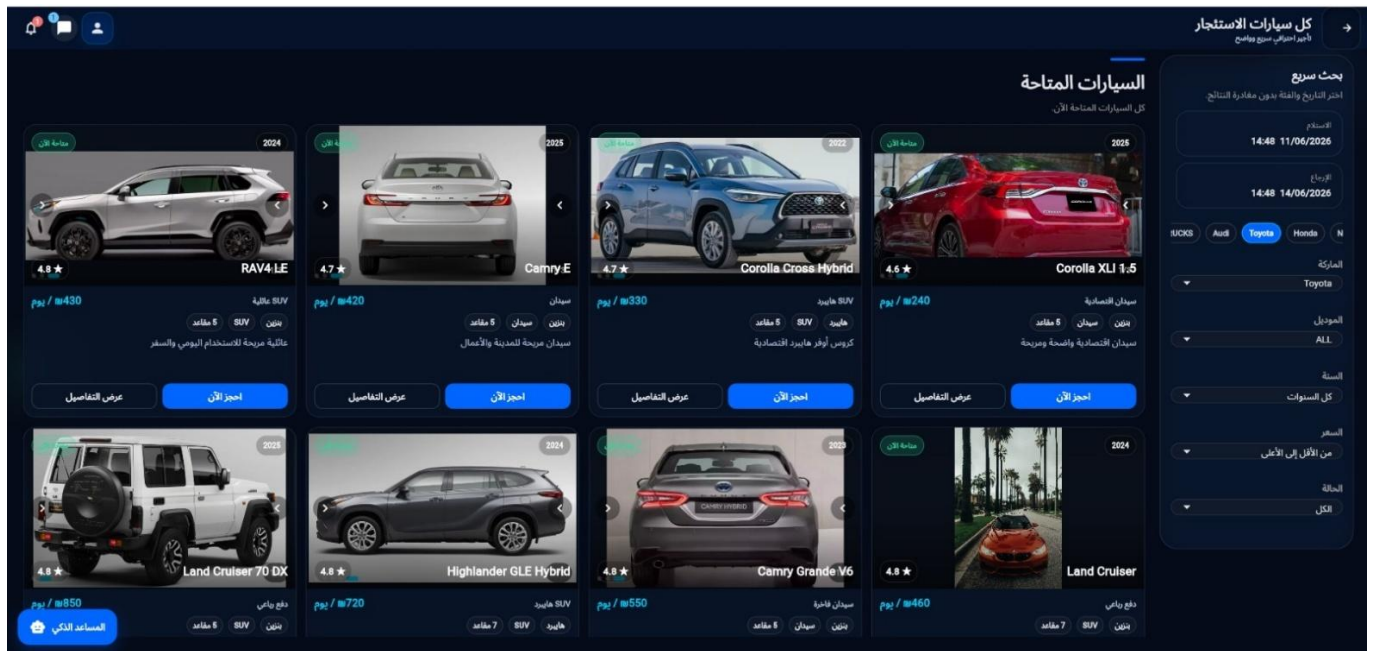


Figure 4.22 Available Toyota Vehicles for Rental

4.2.9 Renter Profile and Account Management Module

The renter profile module in the ZoomCarz platform. This module allows renters to manage their personal information, view their booking history, and monitor account activity. Users can update profile details, configure application settings, manage notification preferences, and select their preferred payment method. Additionally, the module supports GPS location-sharing preferences during active rentals, enabling location tracking only with the renter's consent. The profile page also provides access to favorite vehicles and booking records, allowing users to efficiently manage their rental activities through a centralized and user-friendly interface.

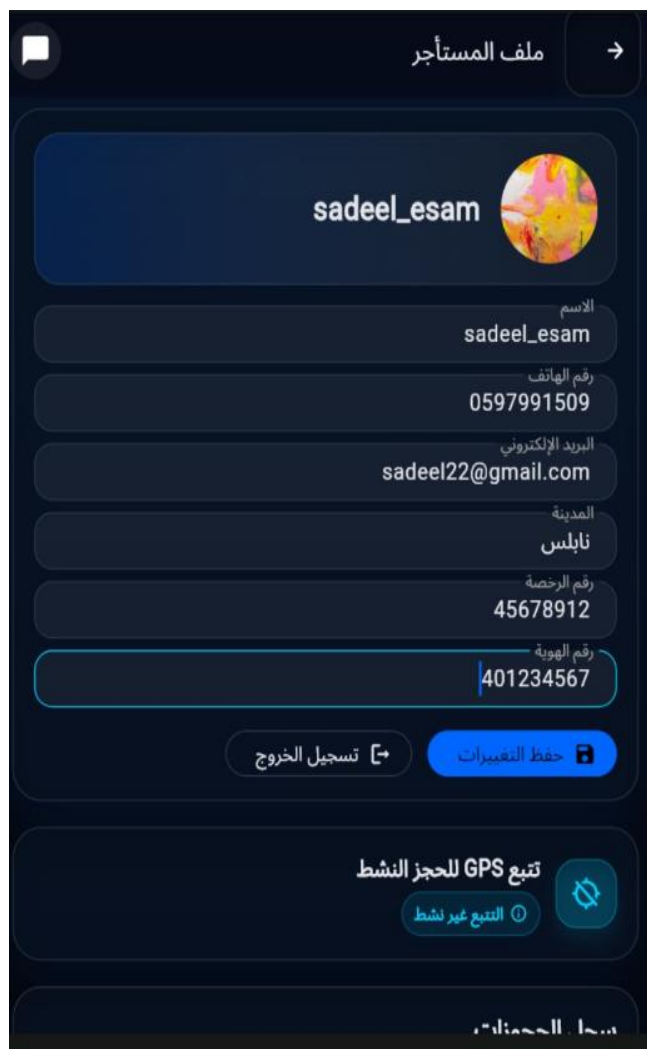


Figure 4.23 Renter Profile and Account Management Screen

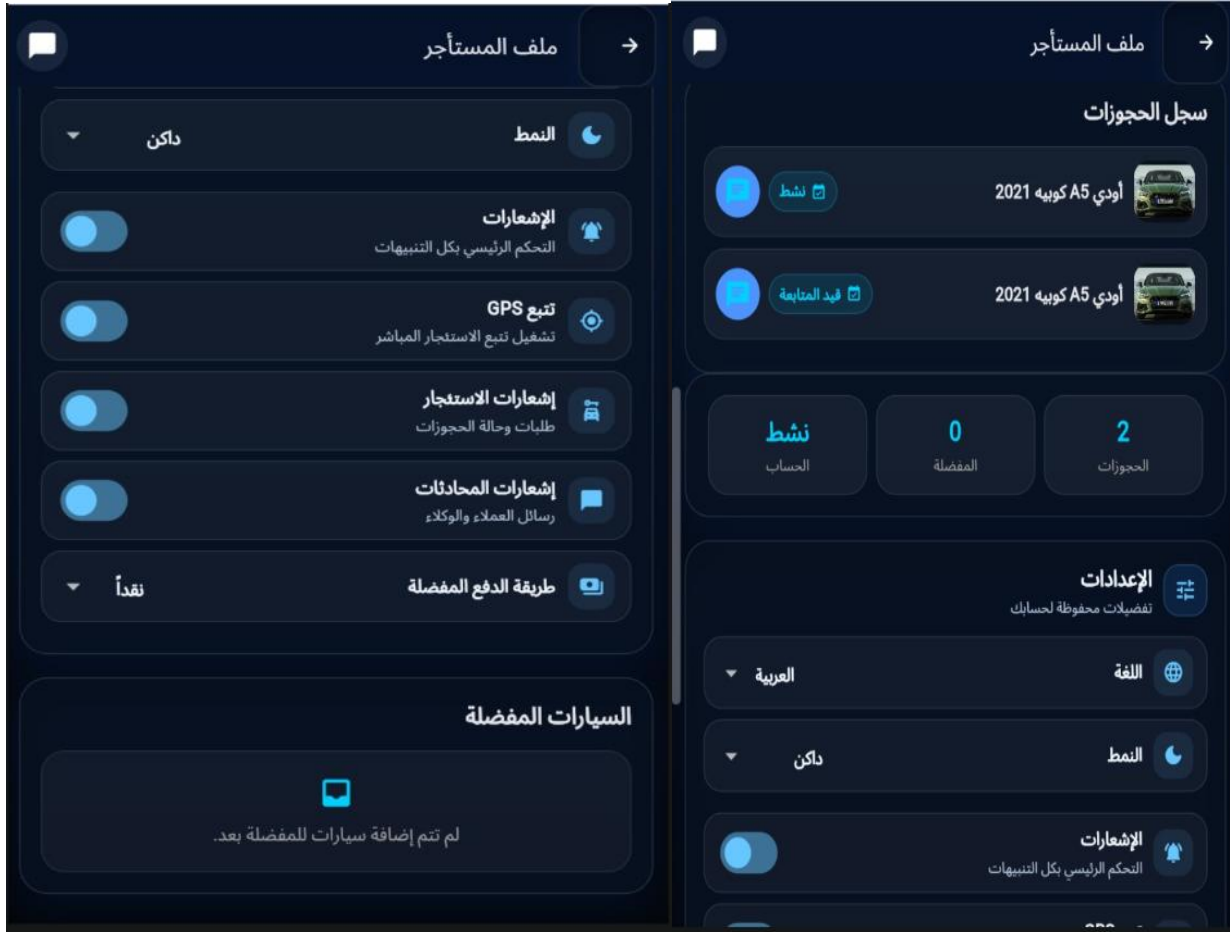


Figure 4.24 shows the renter settings, booking history, and preferences screens, allowing users to manage notifications, GPS tracking, favorite vehicles, and account settings

4.2.10 Vehicle Availability Validation During Rental Requests

The vehicle rental request process in the ZoomCarz platform. When a renter selects a vehicle and submits a rental request, the system automatically checks the vehicle's availability for the selected rental period. If the vehicle is already reserved by another customer, the system displays an appropriate notification informing the user that the vehicle is currently unavailable and cannot be rented at that time. This validation mechanism prevents duplicate reservations, improves booking accuracy, and ensures reliable management of vehicle availability within the platform.



Figure 4.25 illustrates the vehicle availability verification process before confirming a rental request.

4.2.11 Date and Time Selection for Vehicle Rental

Illustrates the date and time selection feature within the vehicle rental process. This interface allows users to specify the pickup and return dates and times before viewing available vehicles and completing the reservation. The feature helps ensure accurate booking management, prevents scheduling conflicts, and enables the system to calculate rental durations and costs more efficiently.

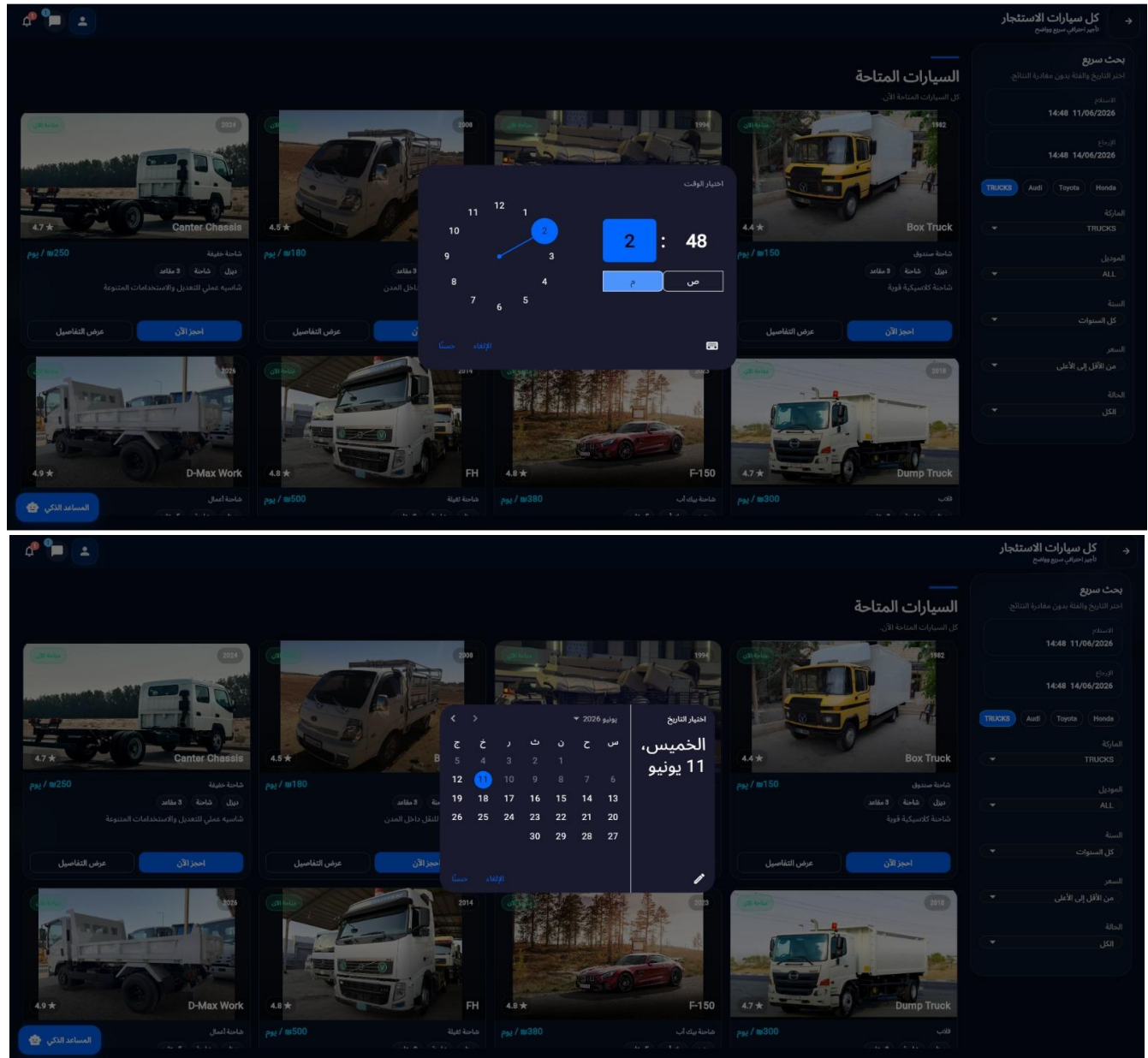


Figure 4.26 Date and Time Selection for Vehicle Rental

4.2.12 Complete Vehicle Rental Journey from Reservation to Confirmation

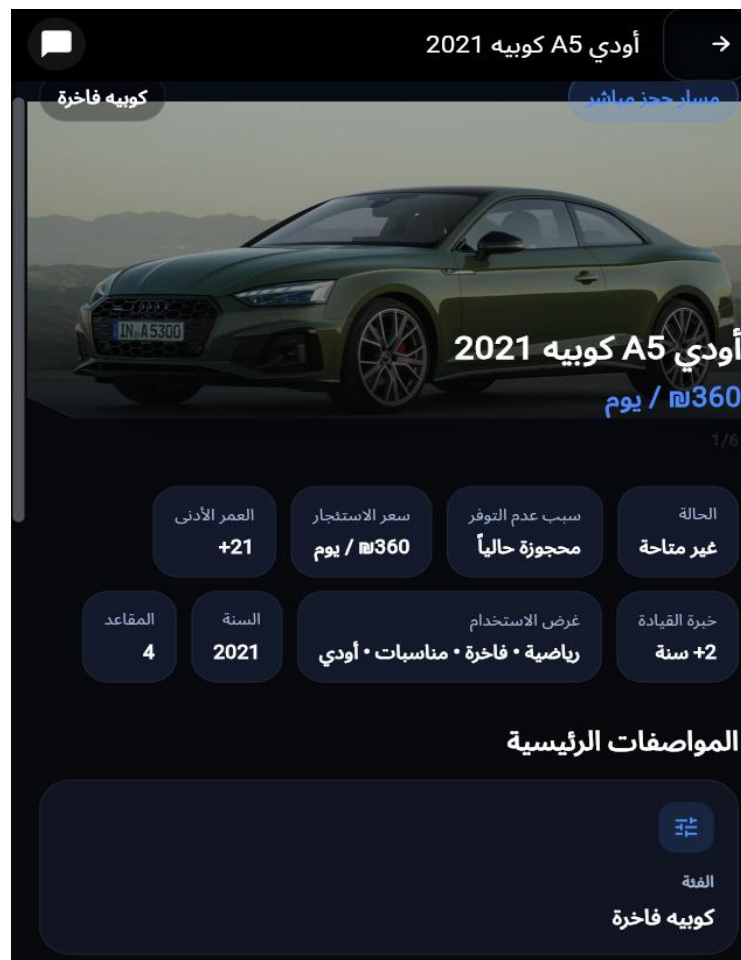


Figure 4.27 shows the rental vehicle details page, where users can view vehicle information, rental conditions, pricing, and availability before submitting a rental request.



Figure 4.28 shows the vehicle specifications and rental request interface within the ZoomCarz platform



Figure 4.29 Vehicle Selection and Rental Schedule



Figures 4.30 illustrate the first stages of the booking process, where users select a vehicle and specify pickup and return information to calculate the rental duration and cost

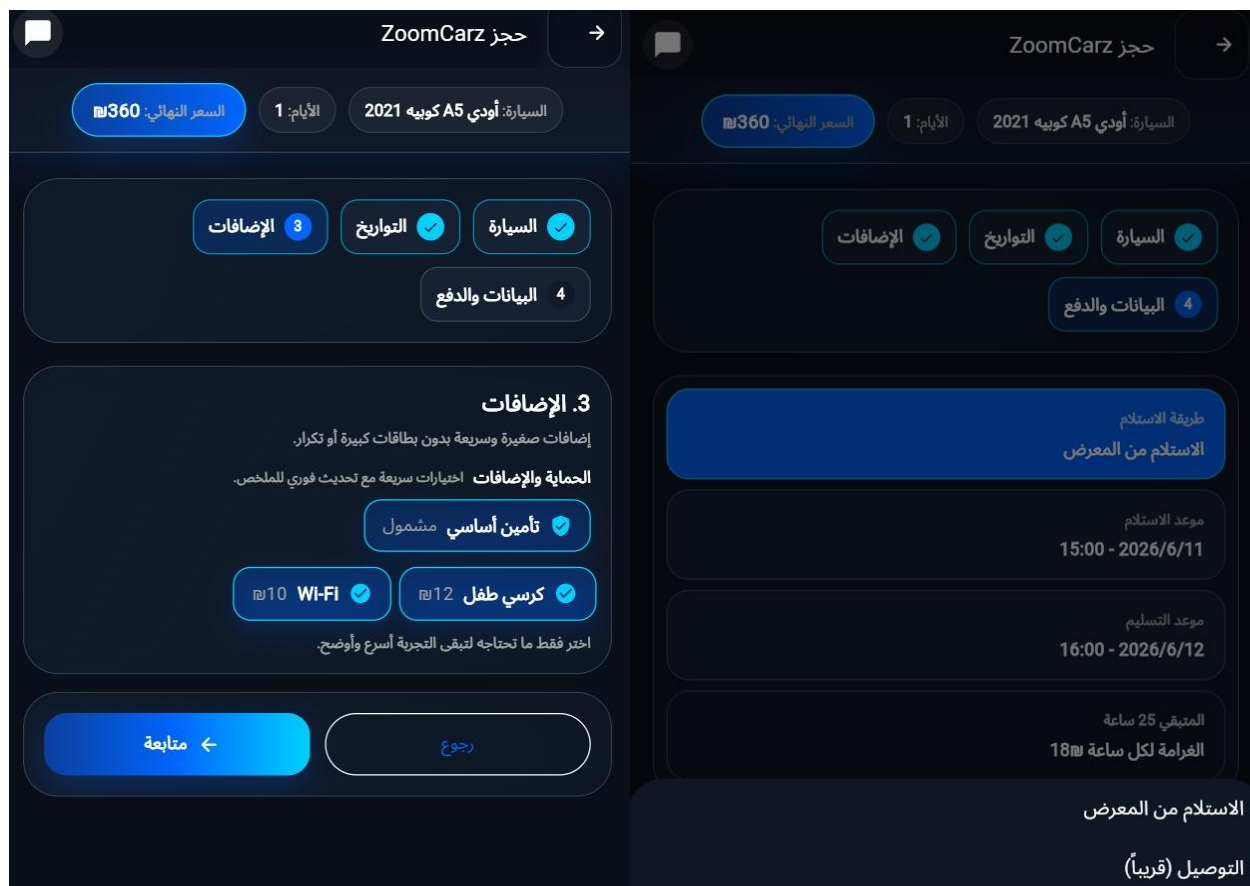


Figure 4.31 illustrates the rental accessories selection process and booking information review before completing the vehicle rental request

ZoomCarz حجز

→

ZoomCarz حجز

→

السعر النهائي: 360

الأيام: 1

السيارة: أودي A5 كوبيه 2021

السعر النهائي: 360

الأيام: 1

السيارة: أودي A5 كوبيه 2021

4. بيانات المستخدم

أدخل البيانات الأساسية وارفع الصور المطلوبة فقط.

الاسم الكامل

سديل عصام تجديه

رقم الهاتف

0595105250

رقم الهوية الشخصية

408563217

رقم رخصة القيادة

23145678

تاريخ الميلاد

2003/7/9

تاريخ إصدار الرخصة

2023/6/11

تاريخ انتهاء الرخصة

2026/6/17

الهوية والرخصة

هوية - الوجه الأمامي

هوية - الوجه الخلفي

رخصة - الوجه الأمامي

رخصة - الوجه الخلفي

Figure 4.32 illustrates the renter information entry process and document verification procedure required before submitting a vehicle rental request

ZoomCarz حجز

السعر النهائي: 360 JD
الأيام: 1
السيارة: أودي A5 كوبيه 2021

5. الدفع داخل نفس الصفحة
اختر وسيلة الدفع وأكمل الحجز من نفس الشاشة.

ملاحظات إضافية

أودي
مناسبات
فاخرة
رياضة ✓

نقدي عند الاستلام

بطاقة بنكية (Stripe Test)

PayPal

إذا اخترت الدفع نقدًا، سيتم دفع المبلغ عند استلام السيارة ولا تحتاج لتعبئة بيانات بطاقة أو حساب إلكتروني.

ZoomCarz حجز

السعر النهائي: 360 JD
الإيام: 1
السيارة: أودي A5 كوبيه 2021

نقدي عند الاستلام
بطاقة بنكية (Stripe Test)
PayPal

بيانات بطاقة الدفع (Stripe Test)
استخدم بطاقة Stripe الاختبارية مثل 4242 4242 4242 4242. لن نحفظ رقم البطاقة أو CVV.

رقم البطاقة

CVV
تاريخ الانتهاء

عنوان الفوترة

الاسم الأول

اسم العائلة

الدولة
فلسطين

العنوان 1

العنوان 2 - اختياري

المدينة

المحافظة

الرمز البريدي

رقم الجوال
0595105250

رمز الدولة
970+ فلسطين

Figure 4.33 illustrates the payment process within the rental module, including payment method selection and secure online payment information entry before confirming the rental request.

ZoomCarz حجز →

السعر النهائي 360 ₪ الأيام 1 السيارة أودي A5 كوبيه 2021

PayPal (Stripe Test) نقدي عند الاستلام

الدفع الحقيقي عبر PayPal الرسمي PayPal

التطبيق لن يطلب كلمة مرور PayPal داخله. سننشئ طلب الدفع من السيرفر ثم نفتح لك صفحة PayPal الرسمية لتسجيل الدخول والموافقة بأمان.

بيانات بدء الدفع

PayPal بريد @

نوع المعالجة: PayPal Checkout

الدولة / المنطقة: فلسطين

عند الضغط على زر إتمام الحجز سيتم فتح PayPal في نافذة رسمية جديدة. ثم يعود التطبيق ليؤكد من نجاح capture قبل تثبيت الحجز.

الإقرار

☐ أوافق على التحقق من الهوية الشخصية والرخصة قبل التسليم.

☐ أوافق على غرامة 5% من سعر تأجير السيارة على كل ساعة تأخير.

احجز الآن رجوع

5. الدفع داخل نفس الصفحة

اختر وسيلة الدفع وأكمل الحجز من نفس الشاشة.

ملاحظات إضافية

أودي مناسبات فاخرة **رياضة ✓**

PayPal (Stripe Test) **نقدي عند الاستلام**

إذا اخترت الدفع نقدًا، سيتم دفع المبلغ عند استلام السيارة ولا تحتاج لتعبئة بيانات بطاقة أو حساب إلكتروني.

الإقرار

☒ أوافق على التحقق من الهوية الشخصية والرخصة قبل التسليم.

☒ أوافق على غرامة 5% من سعر تأجير السيارة على كل ساعة تأخير.

احجز الآن رجوع

Figure 4.34 shows the payment and reservation confirmation screens used to complete the vehicle rental request



Figure 4.35 illustrates the successful submission of a rental request and the temporary reservation of the selected vehicle

4.3 Delivery Staff Module

4.3.1 Delivery Staff Authentication and Dashboard

The delivery staff module, including the login interface and dashboard. Delivery accounts are created and managed by the system administrator, who provides authorized staff with secure login credentials. After authentication, delivery personnel can access their dashboard to view active orders, completed deliveries, assigned tasks, and delivery statistics, enabling efficient task management and workflow monitoring.

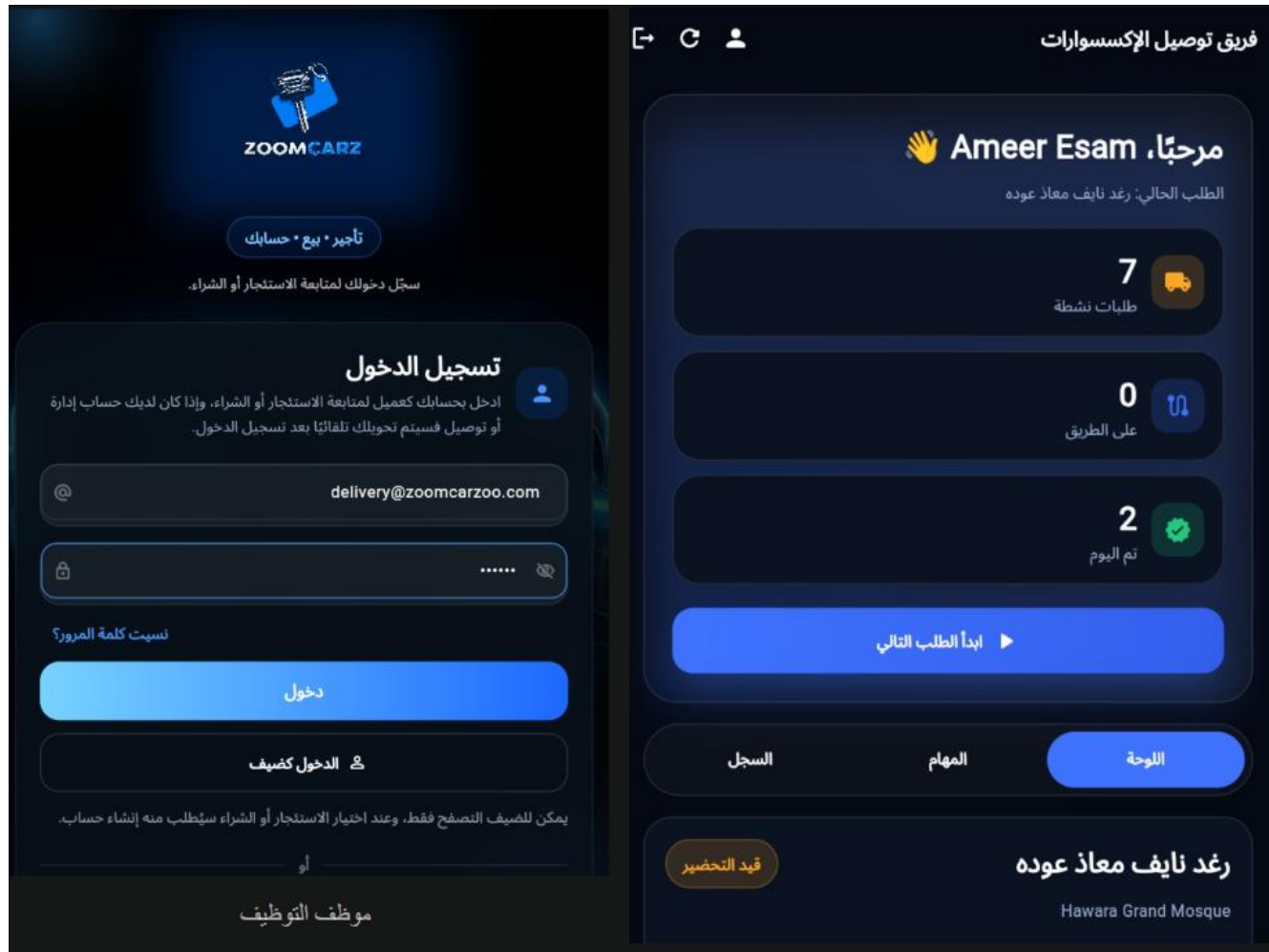


Figure 4.36 Delivery Staff Authentication and Dashboard Interface

4.3.2 Delivery Task Management and Customer Information

The delivery task management interface. The screen provides detailed information about assigned orders, including customer details, payment information, order items, and delivery status. It also allows delivery staff to update task progress, contact customers directly, and track delivery operations from assignment until completion.

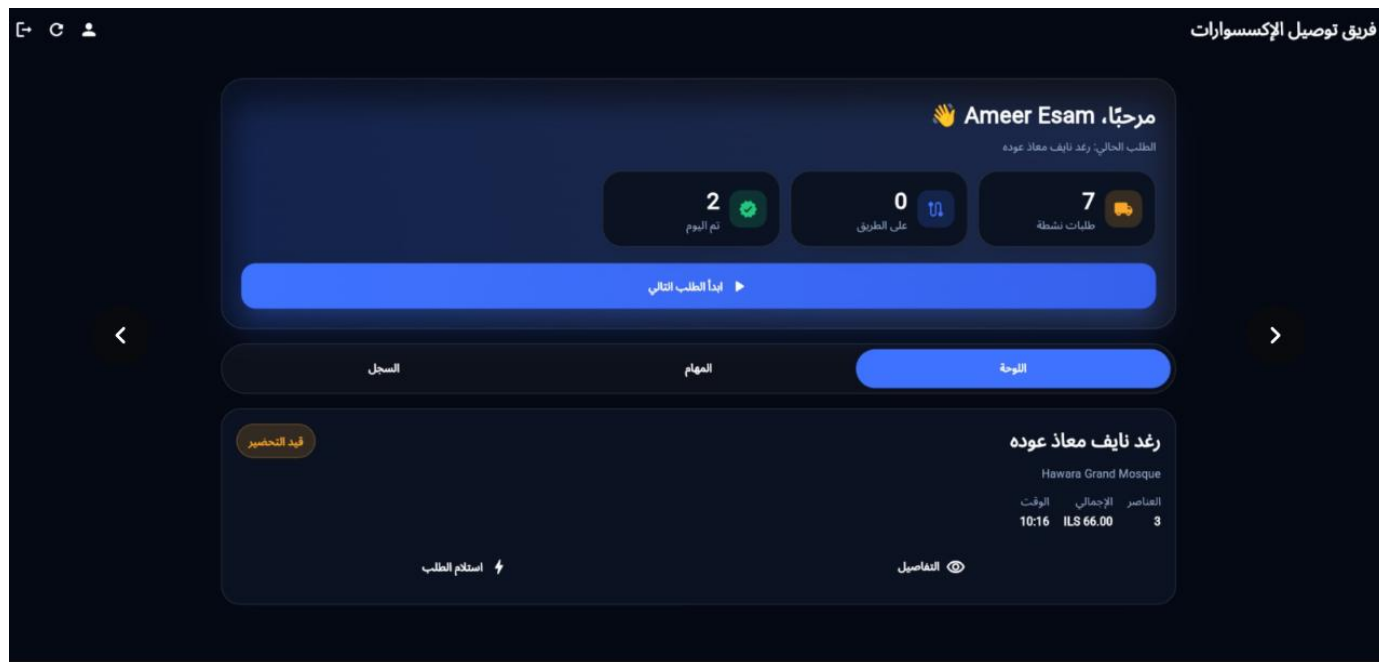


Figure 4.37 Delivery Task Management and Customer Information

4.3.3 Navigation and Delivery Verification Features

This section illustrates the complete delivery order tracking process implemented in the ZoomCarz platform. Once an order is assigned to a delivery staff member, the system provides real-time status updates throughout all delivery stages, including order preparation, transportation, and final delivery confirmation. The platform integrates GPS-based navigation services, allowing delivery personnel to locate and navigate to the customer's destination accurately through an interactive map interface. In addition, the system provides delivery verification features, including customer information, order details, payment information, and proof of delivery documentation. These functionalities improve delivery accuracy, enhance operational efficiency, and ensure reliable tracking and verification of completed delivery requests.

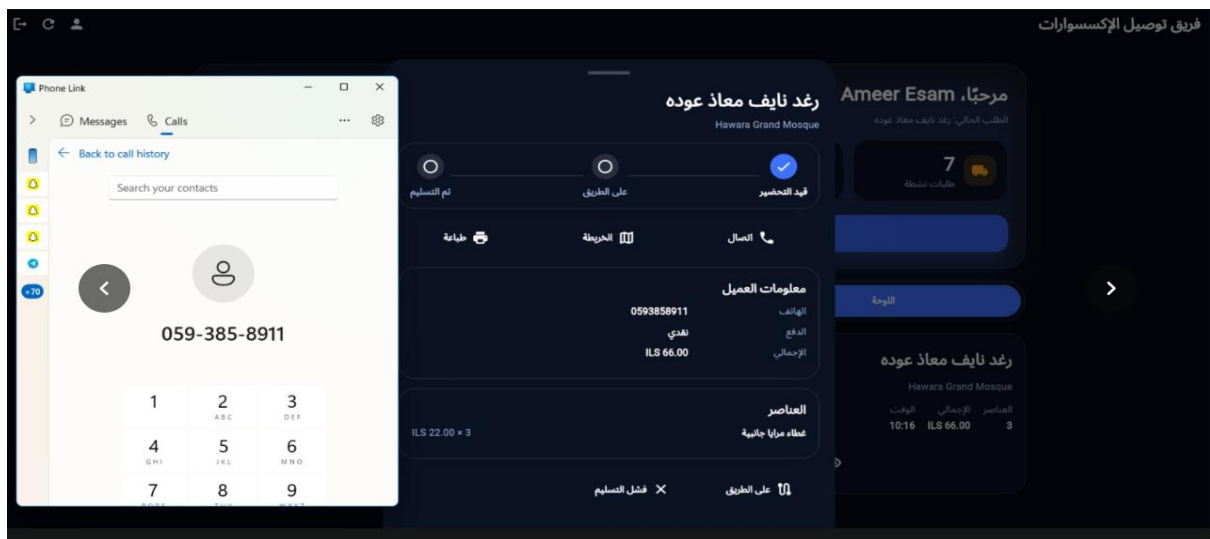


Figure 4.38 Navigation and Delivery Verification Features

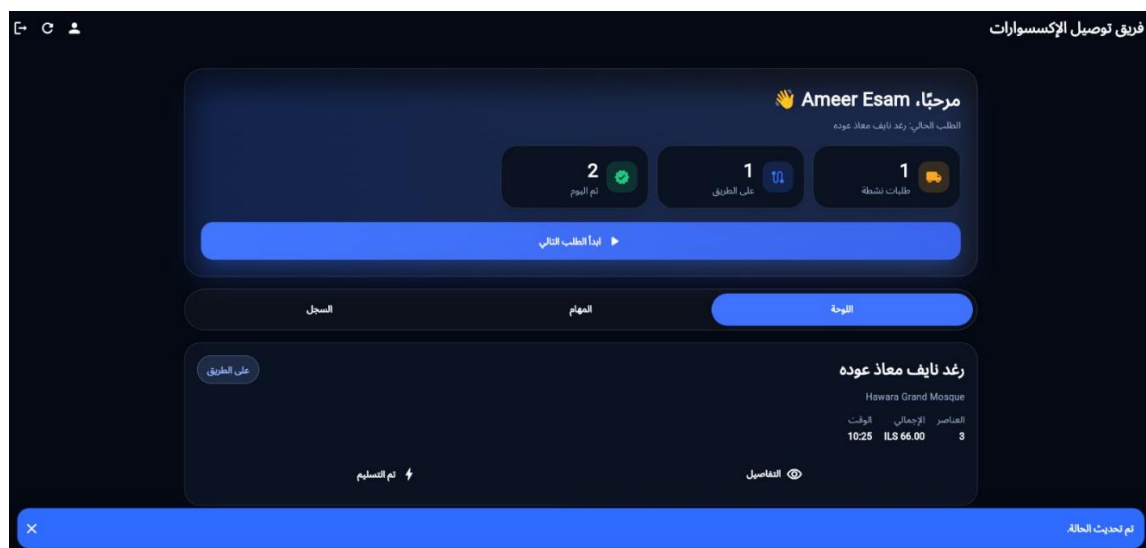


Figure 4.38 "On the Way", enabling delivery staff to monitor active deliveries and track order progress in real time

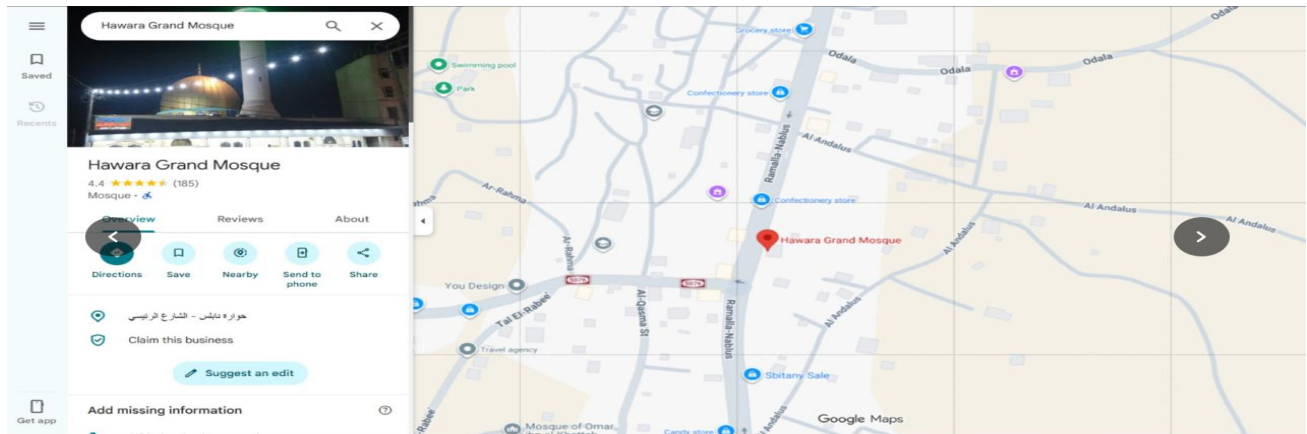


Figure 4.39 Customer Location Tracking and Navigation

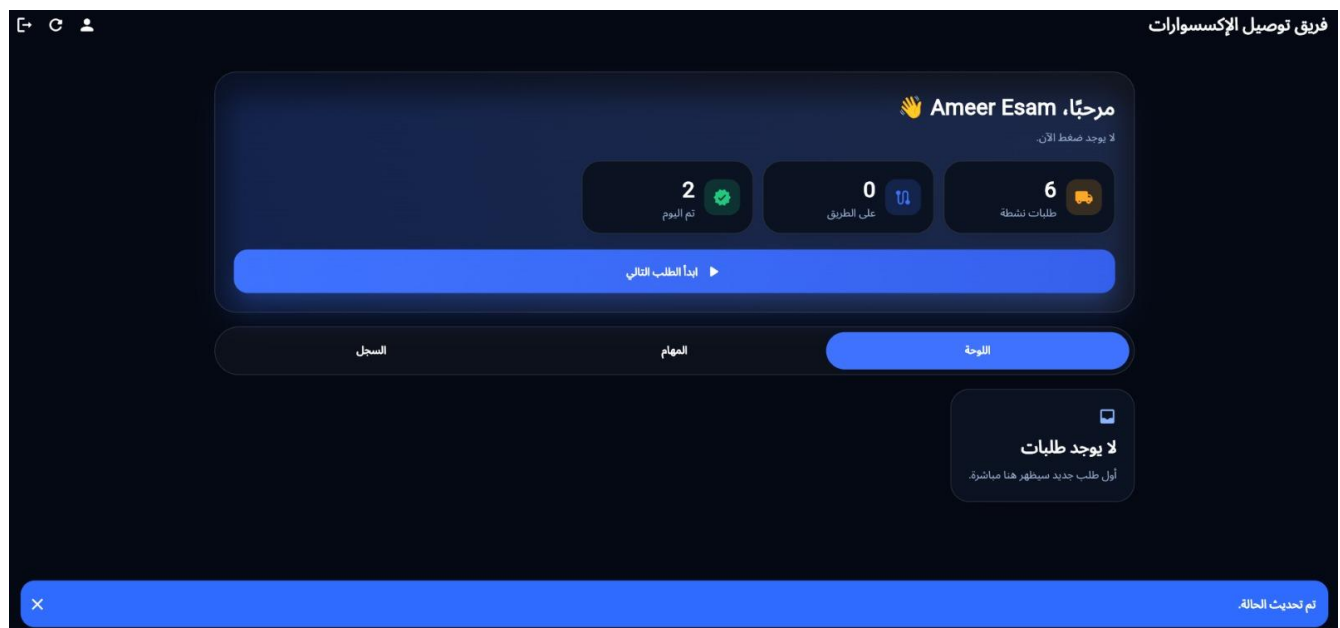


Figure 4.40 shows the delivery dashboard after the order has been successfully delivered. The system updates the delivery status, removes the completed task from active deliveries, and refreshes the dashboard statistics accordingly.

ZoomCarz

إثبات توصيل الطلب

#6

رقم الطلب:

رغد نايف معاذ عوده

العميل:

0593858911

الهاتف:

Hawara Grand Mosque

العنوان:

لشد

طريقة الدفع:

قيد التحضير

الحالة:

غير معتمدين

المندوب:

2026/06/11 • 10:16

التاريخ:

الكمية	الصف	سعر الوحدة	الإجمالي
3	عطاء مرابا جانبية	ILS 22.00	ILS 66.00
ILS 66.00			المجموع الفرعي:
ILS 66.00			الإجمالي النهائي:

Print

1 sheet of paper

Destination

Nitro PDF Creator

Pages

All

Copies

1

Color

Color

More settings

Print

Cancel

Figure 4.41 Delivery Receipt and Order Verification

فريق توصيل الإكسسوارات

2

تم اليوم

0

على الطريق

6

طلبات نشطة

أبدأ الطلب التالي

السجل

المهام

اللوحة

الكل	تم التسليم	فشل	اختر التاريخ
تم التسليم	رغد نايف معاذ عوده Hawara Grand Mosque ILS 66.00 • 10:25 • 2026/06/11		
تم التسليم	رغد عوده جوار شارع العين ILS 145.00 • 21:07 • 2026/06/10		
تم التسليم	سديل عصام نابلس - حلة العاصود - شارع الحرش ILS 15.00 • 20:53 • 2026/06/10		
تم التسليم	رغد نايف عوده جوار الشارع الرئيسي ILS 41.00 • 14:54 • 2026/04/19		

Figure 4.42 Delivery History and Completed Orders Log



Figure 4.43 Completed Delivery Details and Verification

This section presents the delivery staff profile management module in the ZoomCarz platform. The module provides delivery personnel with a centralized interface for managing personal and operational information required for daily delivery activities. Through this interface, delivery staff can view and update personal details, contact information, employment records, assigned vehicle information, delivery regions, work schedules, and availability status. The module also enables secure data management by allowing staff members to save and update their information while ensuring that all modifications are accurately stored within the system. These features support efficient workforce management, improve operational coordination, and enhance the overall reliability of delivery services.

ملف مندوب التوصيل →

Ameer Esam
delivery@zoomcarzoo.com

2 تم اليوم
6 نشط الآن

الحالة الحالية
متصل ويستقبل الطلبات

البيانات الأساسية

الاسم الكامل
Ameer Esam

رقم الهاتف
0597096848

المدينة
nablus

رقم الهوية
407477918

الرقم الوظيفي
1007

تاريخ التوظيف
2020-09-07T21:00:00.000Z

بيانات التشغيل

نوع المركبة
Kia Pegas 2024

رقم لوحة المركبة
41-582-19

منطقة التوصيل
نابلس - جنين - طولكرم

فترة العمل
صباحي (AM - 04:00 PM 08:00)

هاتف الطوارئ
0595105250

نبذة
نبذة قصيرة
مندوب توصيل محترف يمتلك خبرة في تسليم واستلام الاوردرات وإدارة الطلبات اليومية، ملتزم بالمواعيد ويتميز بالتعامل الجيد مع العملاء

حفظ التغييرات

تم حفظ بيانات المندوب في قاعدة البيانات.

Figure 4.44 shows the delivery staff profile interface, enabling personnel to manage personal, operational, and vehicle-related information and save updates within the system.

The delivery activity history module within the ZoomCarz platform. This module enables delivery staff to monitor and review previously completed delivery operations through a centralized history interface. The system records essential delivery information, including customer details, delivery locations, order values, completion status, and transaction dates. In addition, summary statistics displayed on the dashboard provide an overview of active deliveries, completed orders, and deliveries currently in progress.



Figure 4.45 Delivery History Records and Delivery Staff Performance Monitoring

4.4 Dealer Management Module

4.4.1 Dealer Login and Dashboard Interface

presents the dealer login and dashboard interface in the ZoomCarz platform. The module allows dealership owners to securely access the system using authorized credentials and manage dealership activities through a centralized dashboard. The dashboard provides an overview of vehicle inventory, rental and purchase requests, notifications, and key operational statistics. This interface serves as the main control center for dealers, enabling efficient monitoring and management of daily business operations.

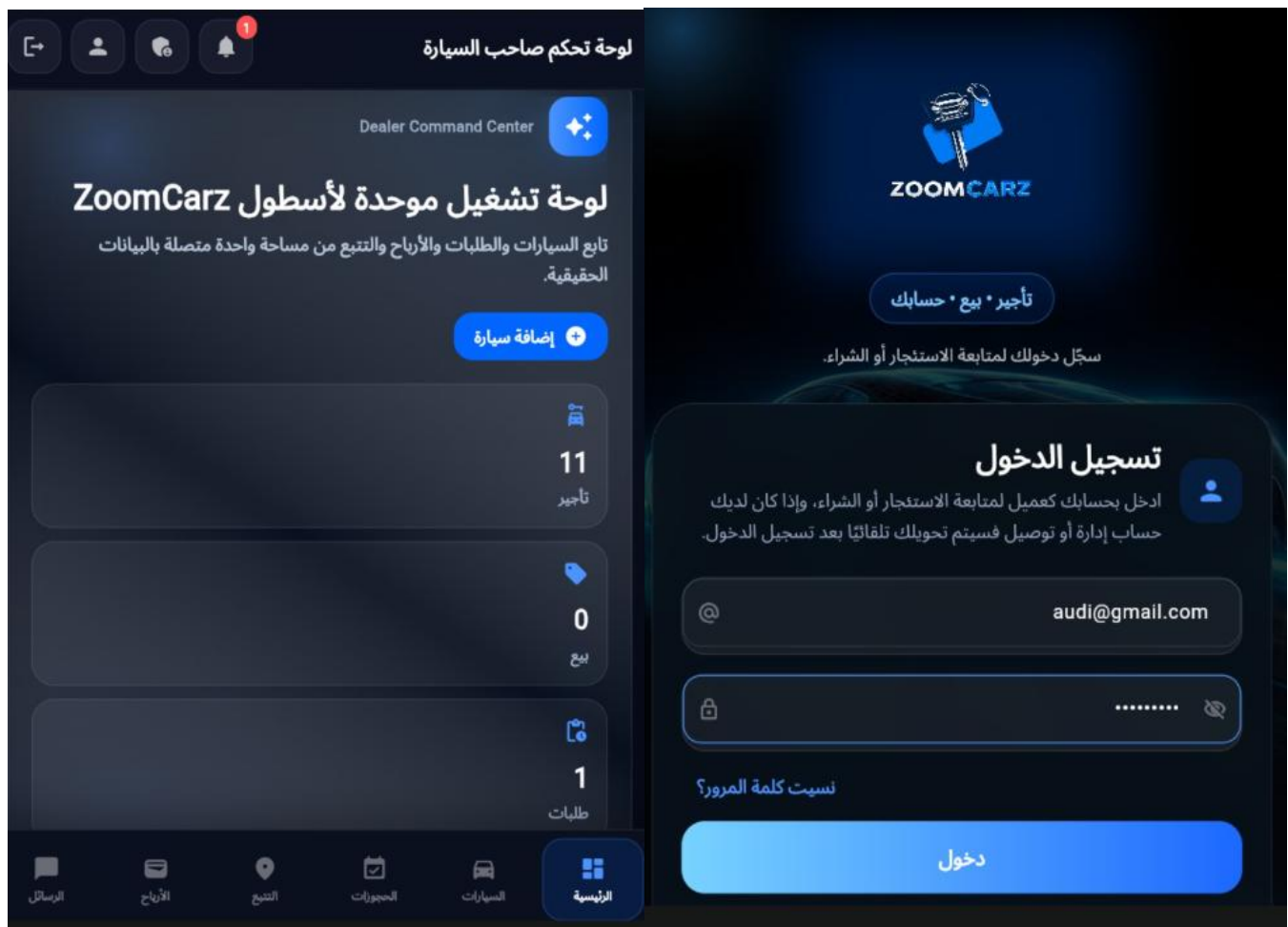


Figure 4.46 Dealer Login and Dashboard

4.4.2 Rental Request Notifications and Dealer Approval or Rejection Process

4.4.2.1 Rental Request Notification and Dealer Decision Workflow

The rental request notification and dealer approval or rejection process within the ZoomCarz platform. When a customer submits a vehicle rental request, the system automatically generates a notification that is delivered to the corresponding dealer through the notification center. The dealer can review the request details, including customer information, vehicle data, rental period, and reservation cost. Based on the provided information, the dealer can either approve or reject the request. This process ensures efficient reservation management, supports timely decision-making, and provides a structured workflow for handling rental requests within the platform.

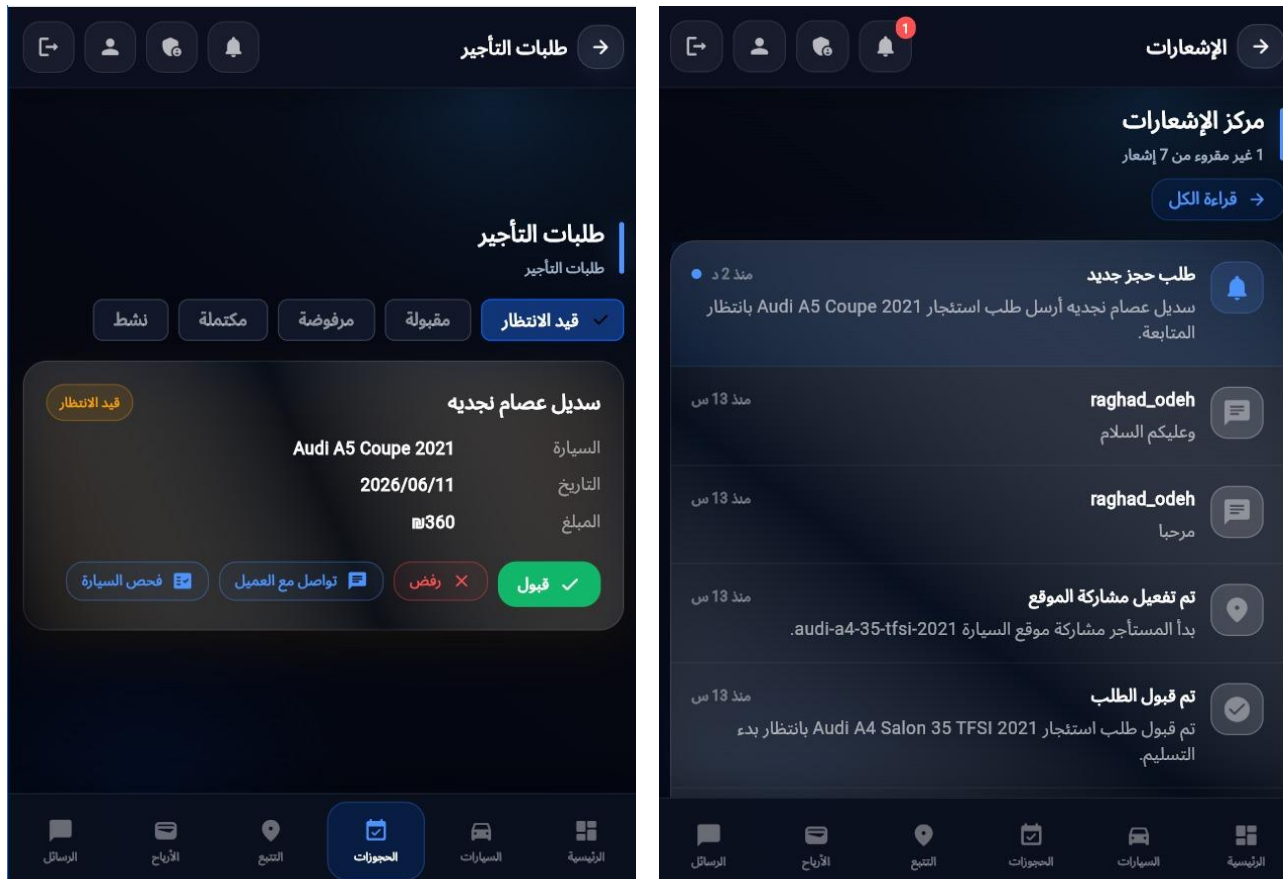


Figure 4.47 rental Request Notification and Dealer Approval or Rejection Process

The communication and payment confirmation features within the dealer management module. After a rental request is approved, the system automatically creates a dedicated chat channel between the dealer and the customer, enabling direct communication regarding vehicle pickup, delivery arrangements, and reservation details. The module also supports payment verification, allowing dealers to confirm cash payments and update the rental status accordingly. These features enhance coordination between both parties, improve communication efficiency, and ensure a smooth rental process.

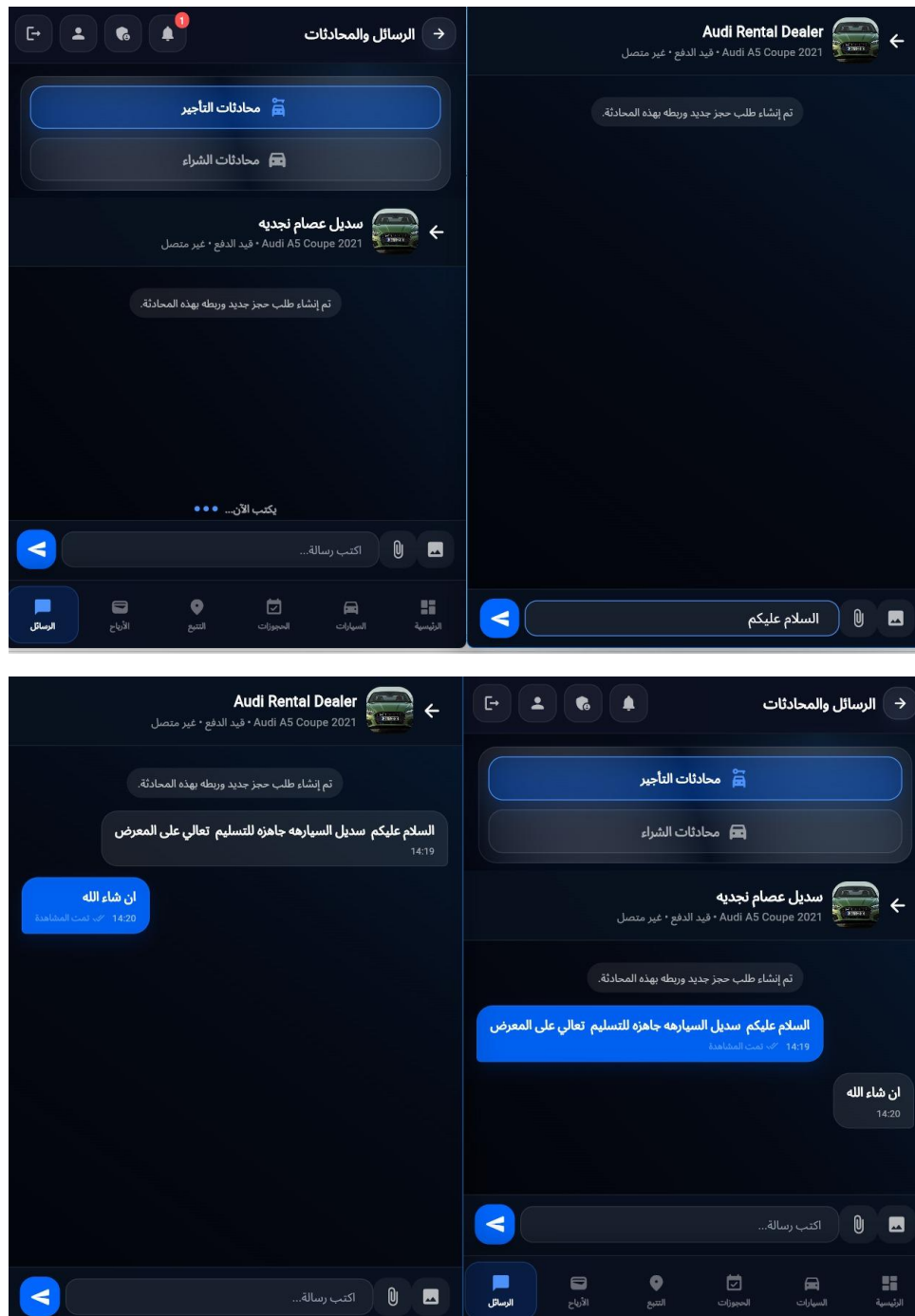


Figure 4.48 Dealer–Customer Messaging System

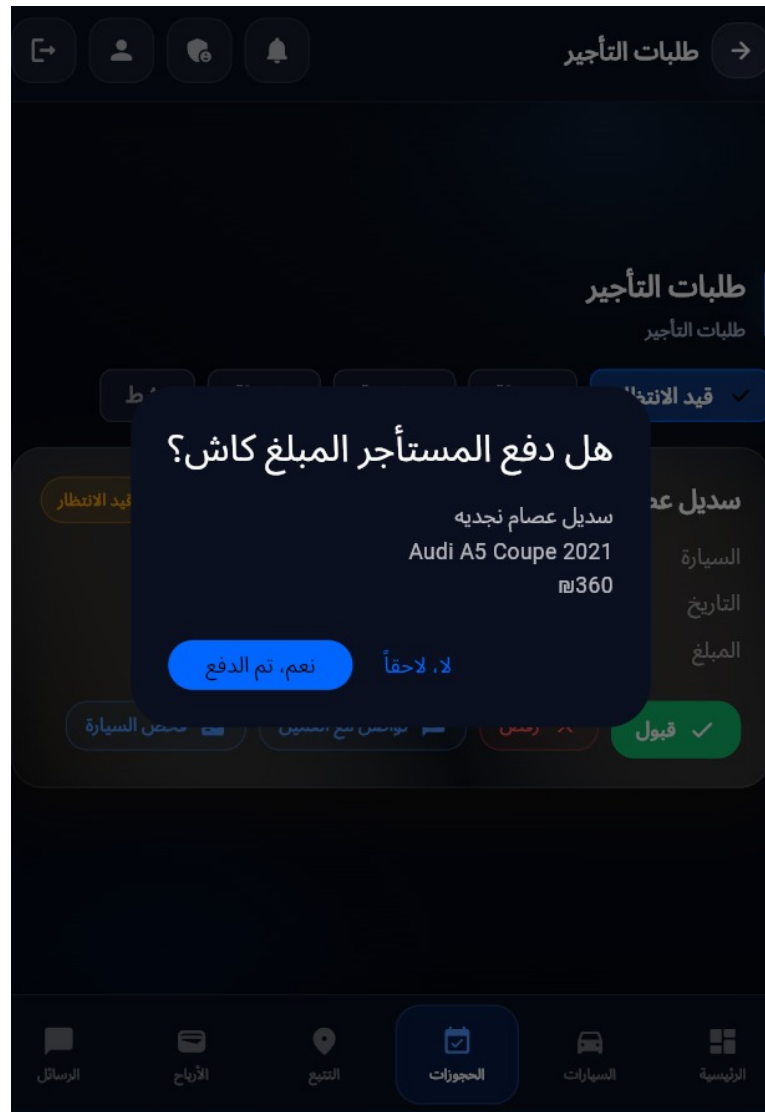


Figure 4.49 Payment Confirmation Dialog

4.4.2.2 Location Sharing and Live Vehicle Tracking

the location sharing and live tracking functionality within the ZoomCarz dealer management module. After a rental request is approved, the dealer can enable location sharing with the renter's consent. The system requests GPS permissions from the user and generates a notification confirming that location sharing has been activated. Once enabled, the dealer can monitor the rented vehicle through a real-time tracking interface that displays the vehicle's current location on an interactive map, along with tracking information such as coordinates, update time, connection status, and location accuracy. These features enhance vehicle security, improve monitoring capabilities, and provide greater transparency throughout the rental period.

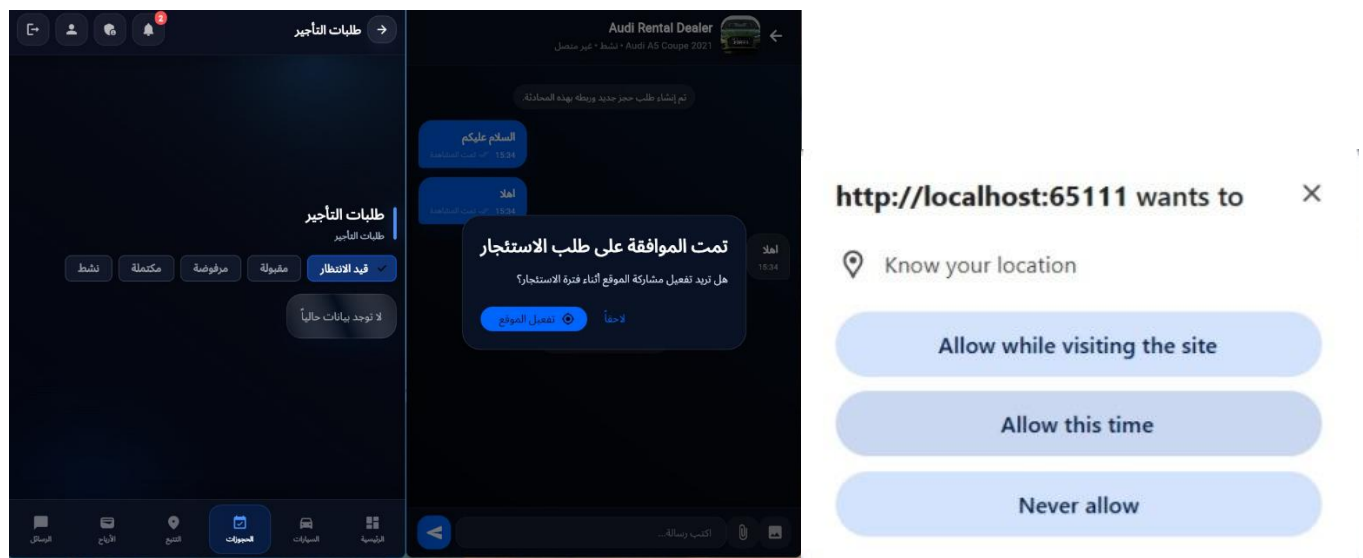


Figure 4.50 Location Sharing Activation and GPS Permission Request



Figure 4.51 Successful Activation of Location Sharing for Vehicle Tracking

The following figures illustrate the live vehicle tracking functionality after location sharing has been activated by the renter. Once GPS access is granted, the system sends a confirmation notification and begins transmitting real-time location data to the dealer. The tracking interface displays the rented vehicle on an interactive map and provides detailed tracking information, including customer name, geographic coordinates, connection status, speed, location accuracy, and the latest update time. This functionality enhances transparency, improves vehicle monitoring capabilities, and enables dealers to track rented vehicles securely throughout the rental period.



Figure 4.52 Live Vehicle Tracking Module

4.4.2.3 Vehicle Registration and Update Process

The following figures illustrate the Dealer Vehicle Management module within the ZoomCarz platform. This module enables dealers to manage their vehicle inventory through a centralized interface, allowing them to add new vehicles, update existing vehicle information, modify pricing and availability status, upload vehicle images, and maintain detailed specifications such as model, year, fuel type, transmission, and seating capacity. The system provides an efficient way to keep vehicle records up to date, ensuring accurate information is displayed to customers and supporting effective inventory management across the platform.

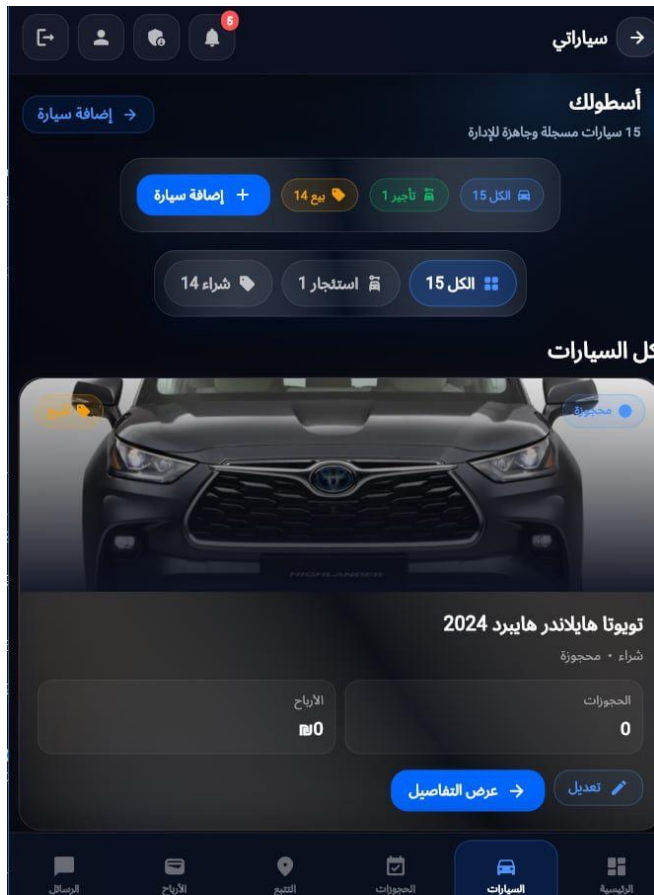


Figure 4.53 Fleet Management Screen



Figure 4.54 Edit Vehicle Details

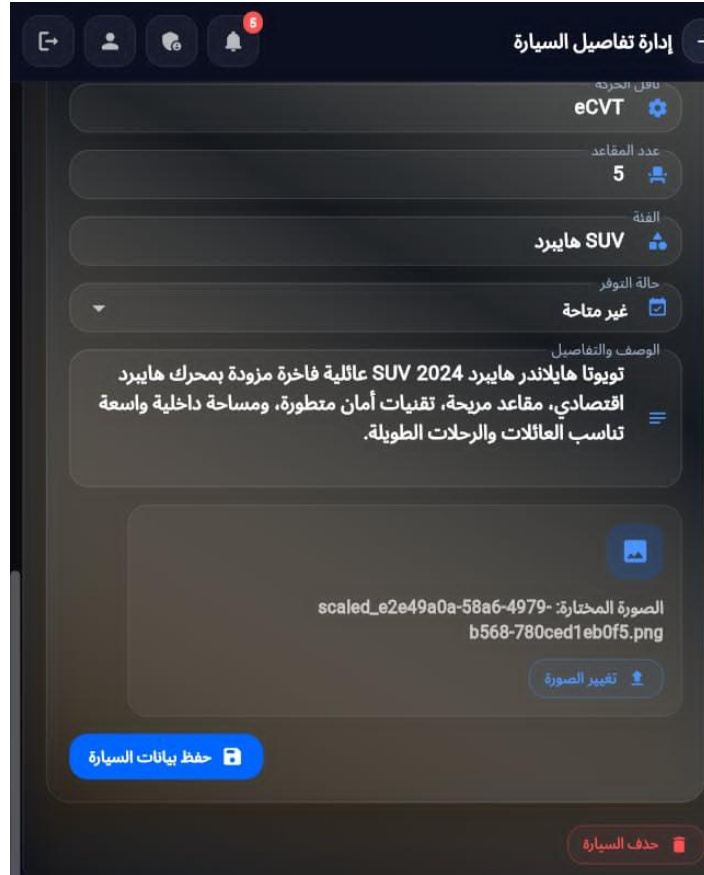


Figure 4.55 Vehicle Image and Information Update



Figure 4.56 Update Success Message

The following figures demonstrate how dealers can update vehicle availability within the ZoomCarz platform. After modifying the vehicle status and saving the changes, the updated availability is immediately reflected across the dealer dashboard and vehicle listings. This ensures that customers always view accurate and up-to-date information regarding vehicle availability, helping to prevent purchase requests.

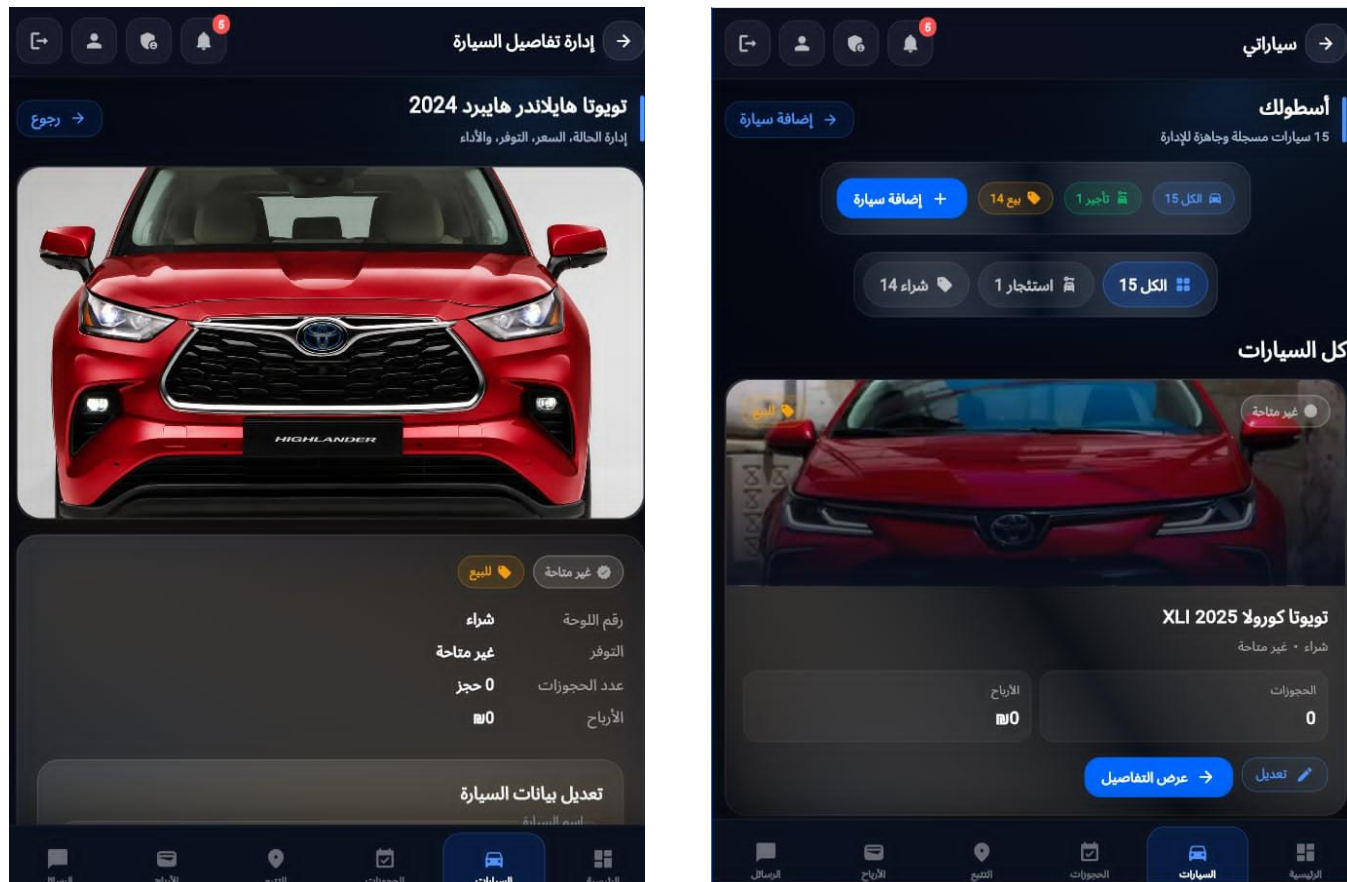


Figure 4.57 Newly Added Vehicle in Dealer Inventory

The following figures demonstrate how dealers can update vehicle availability within the ZoomCarz platform. After modifying the vehicle status and saving the changes, the updated availability is immediately reflected across the dealer dashboard and vehicle listings. This ensures that customers always view accurate and up-to-date information regarding vehicle availability, helping to prevent purchase requests.

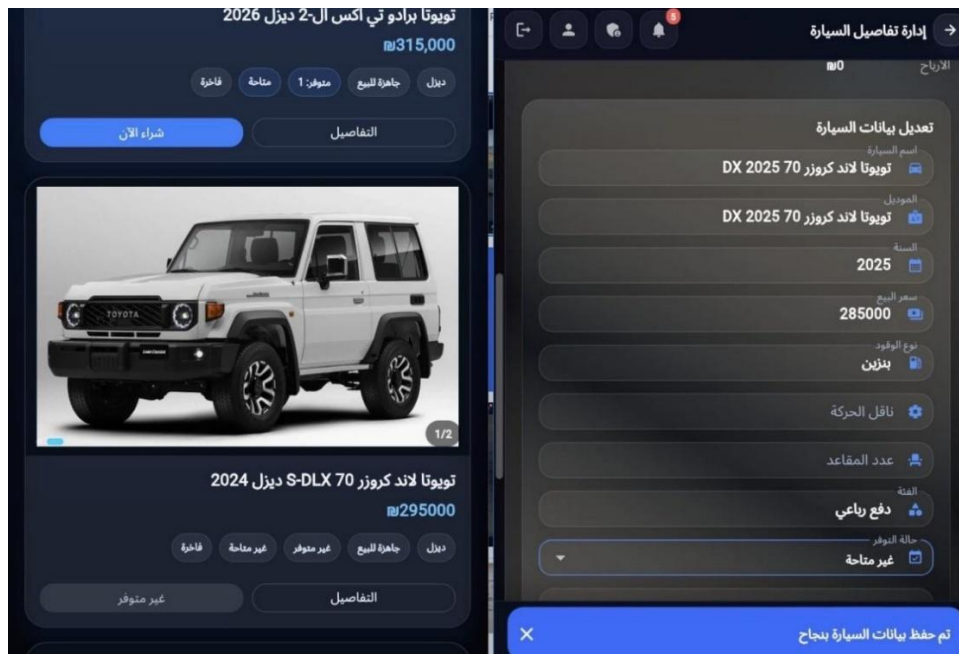


Figure 4.58 Updated Vehicle Availability Status



Figure 4.59 Unavailable Vehicle Displayed to Customers

4.4.2.4 Dealer Revenue Monitoring and Agency Profile Management

The following figures illustrate additional management functionalities available to dealership owners within the ZoomCarz platform. Dealers can monitor rental and purchase revenues through a dedicated dashboard that provides financial summaries and performance statistics. In addition, the platform includes an agency profile management interface that allows dealers to update dealership information, contact details, and business descriptions. These features support operational oversight, improve business management, and ensure that dealership information remains accurate and up to date.

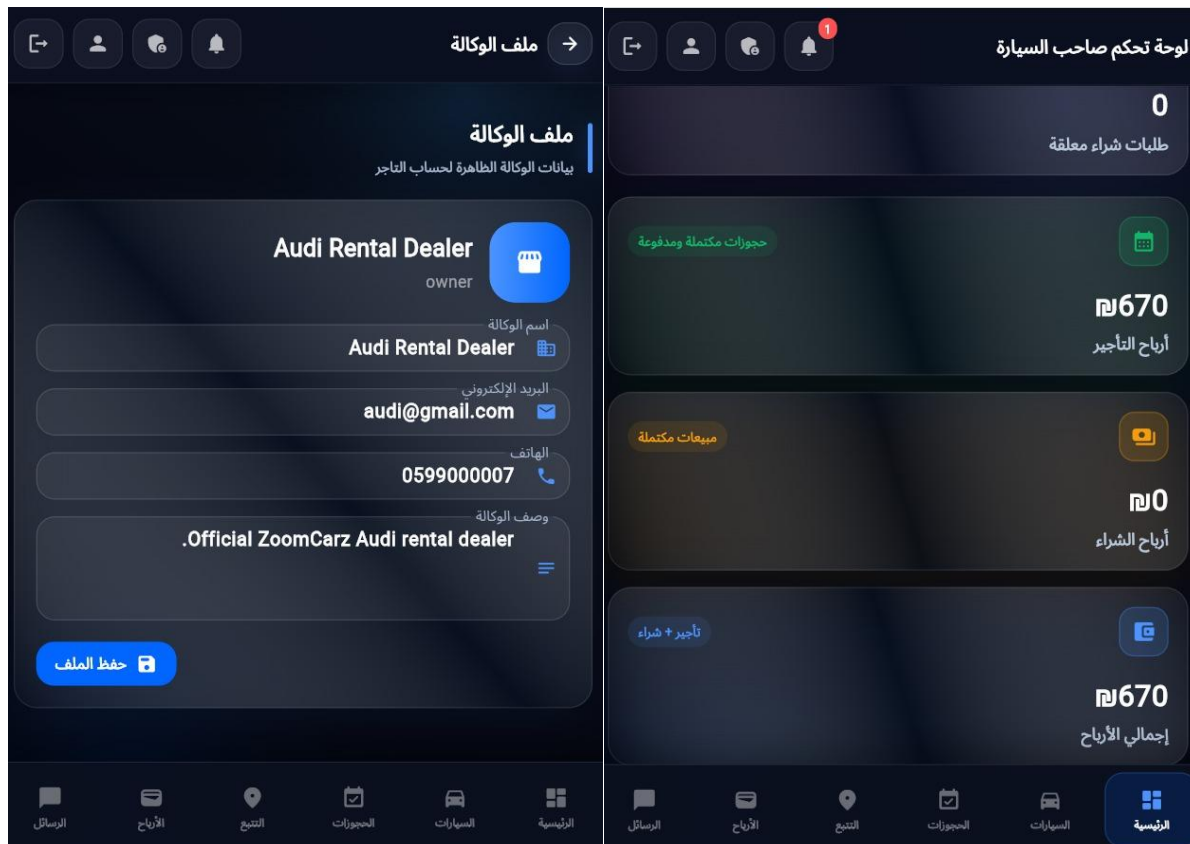


Figure 4.60 Dealer Revenue Dashboard and Agency Profile Management Interface

4.4.2.5 Dealer–Super Admin Communication Module

The ZoomCarz platform provides an integrated communication channel between dealership owners and the Super Admin, enabling direct and real-time interaction. Through this module, dealers can send inquiries, request technical support, report operational issues, and receive administrative guidance when needed. This functionality improves coordination between platform administrators and dealers, ensuring efficient communication and faster resolution of business and system-related matters.

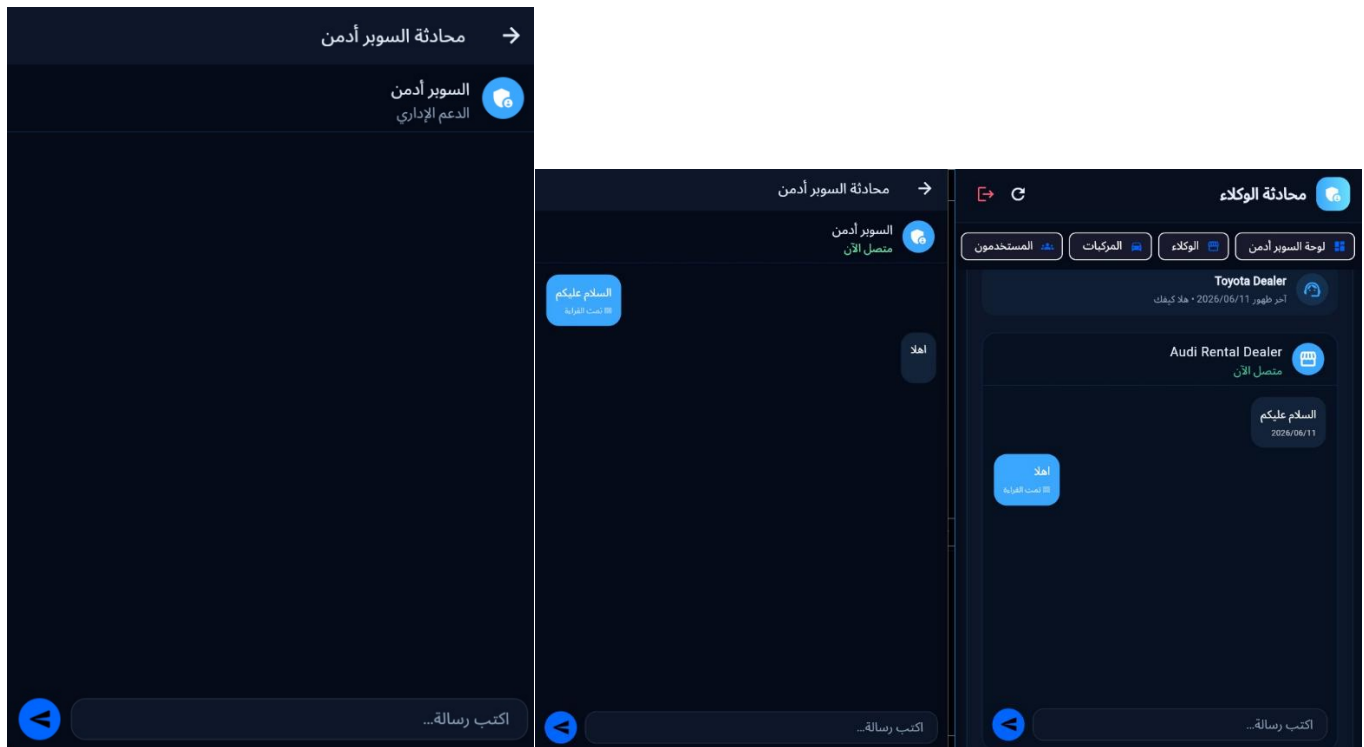


Figure 4.61 Dealer and Super Admin Real-Time Communication Interface.

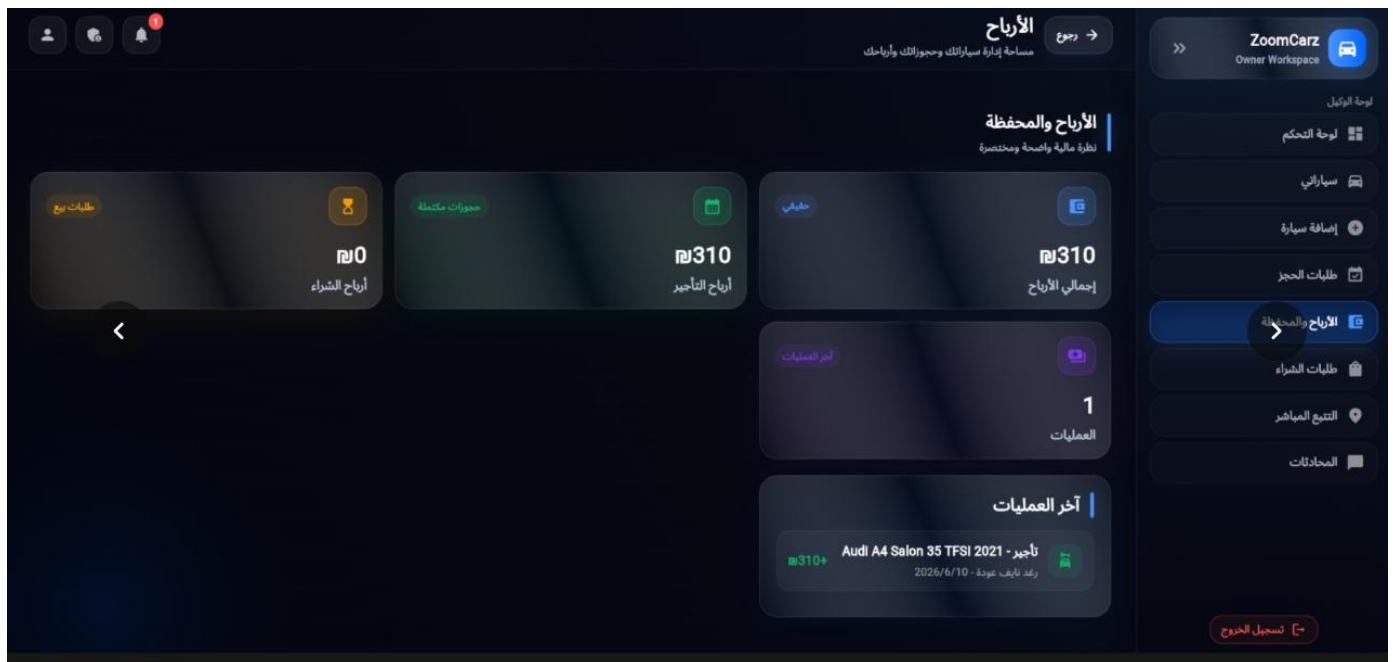


Figure 4.62 shows the dealer revenue dashboard, which displays financial statistics, income summaries, and recent business transactions

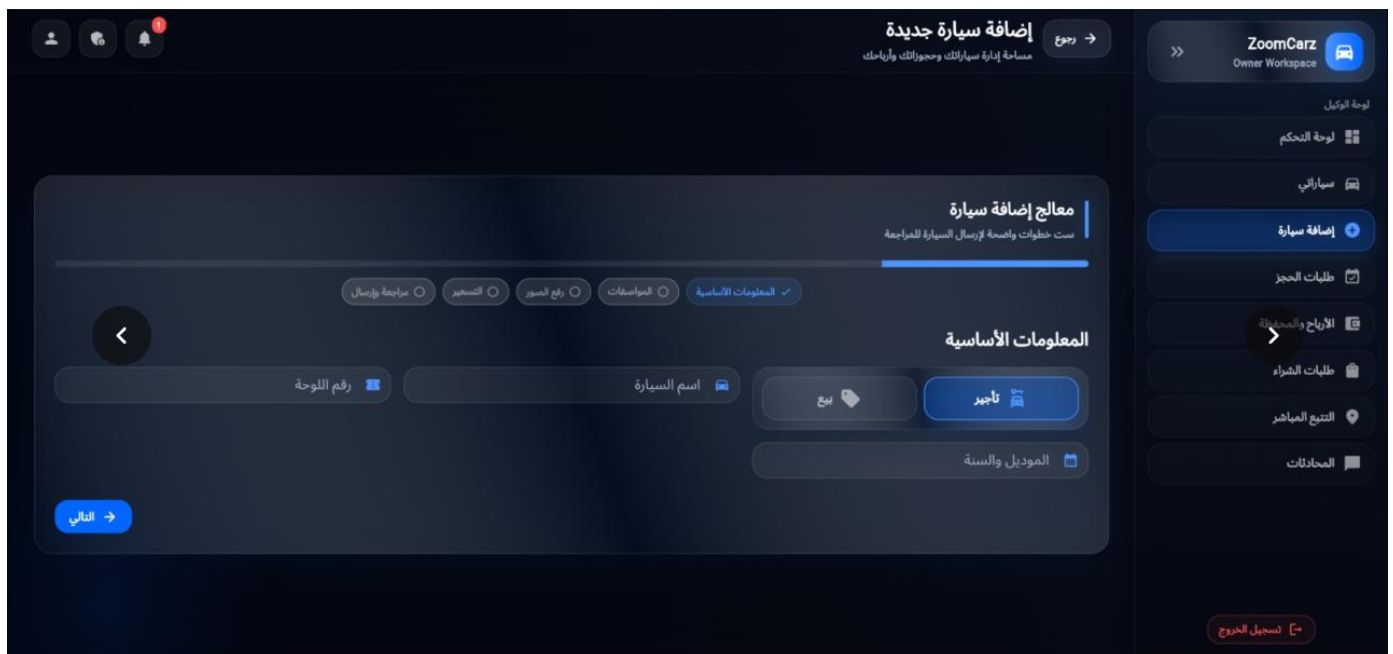


Figure 4.63 shows the vehicle addition screen, allowing dealers to register and manage vehicles within the platform

4.5.1 Super Admin Dashboard and System Monitoring

presents the Super Admin dashboard, which provides a centralized control panel for managing the entire ZoomCarz platform. The dashboard displays key statistics related to dealers, vehicles, users, rental requests, purchase requests, revenues, and system activities, enabling efficient monitoring and decision-making.

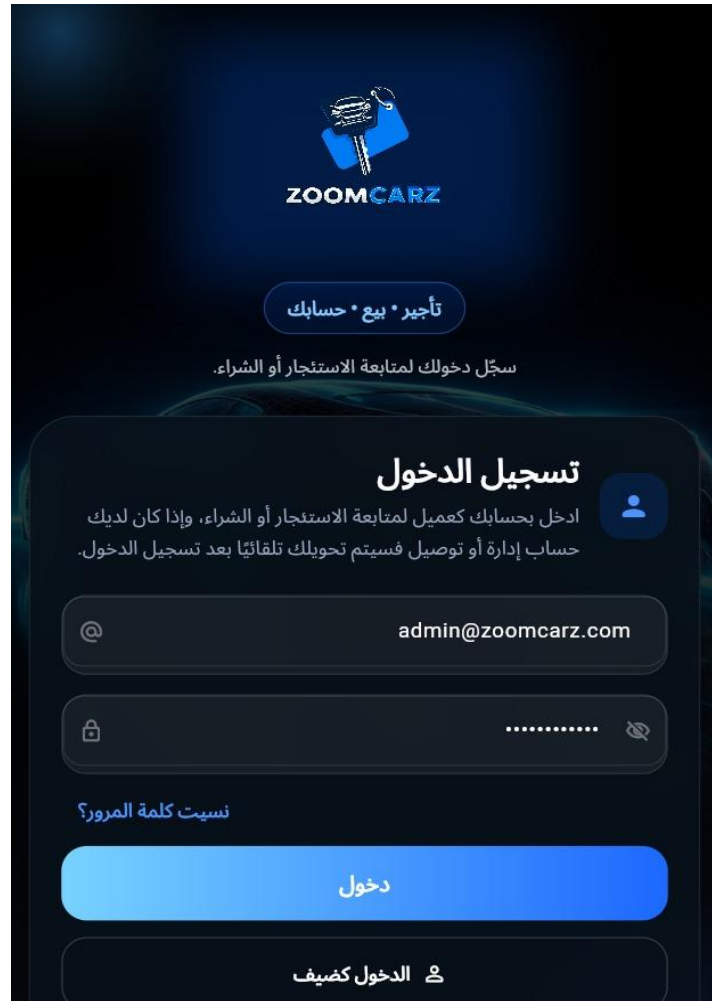


Figure 4.64 Super Admin Login Screen

4.5.2 The dealer management and communication module

Through this interface, the Super Admin can create dealer accounts, manage permissions, activate or deactivate accounts, reset passwords, and communicate directly with dealers using the integrated real-time chat system.

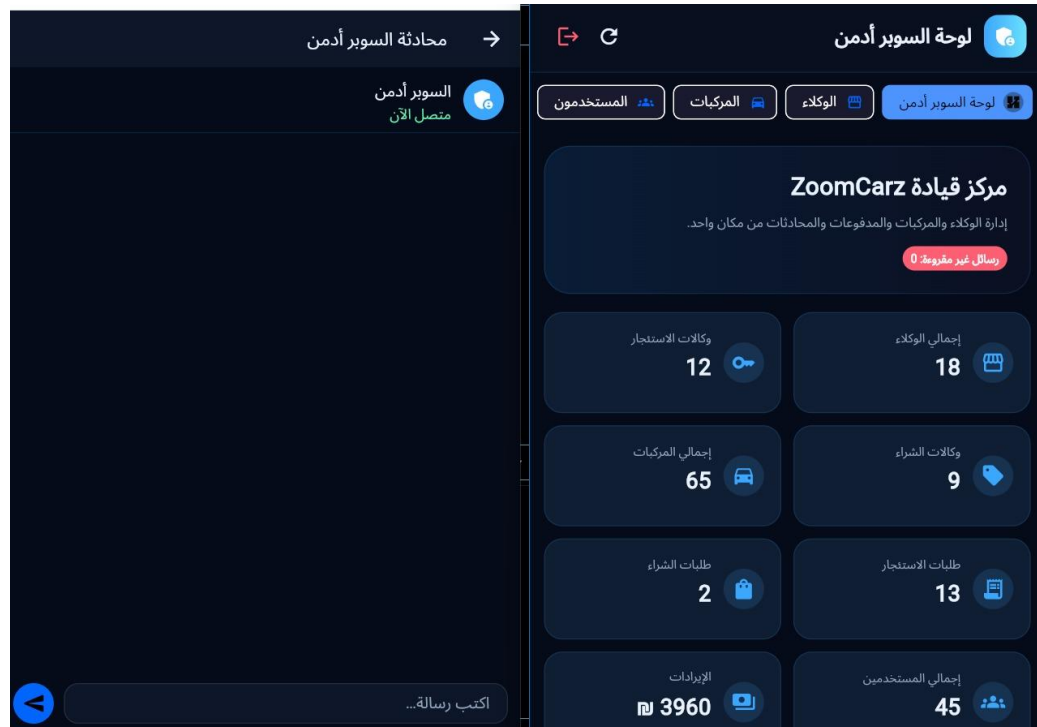


Figure 4.65 Dealer Management and Communication Module

The following figures illustrate the user management and audit monitoring functions available to the Super Admin in the ZoomCarz platform. The Super Admin can manage user accounts, perform administrative actions, and monitor system activities through the audit log. These features enhance system control, transparency, and operational oversight.

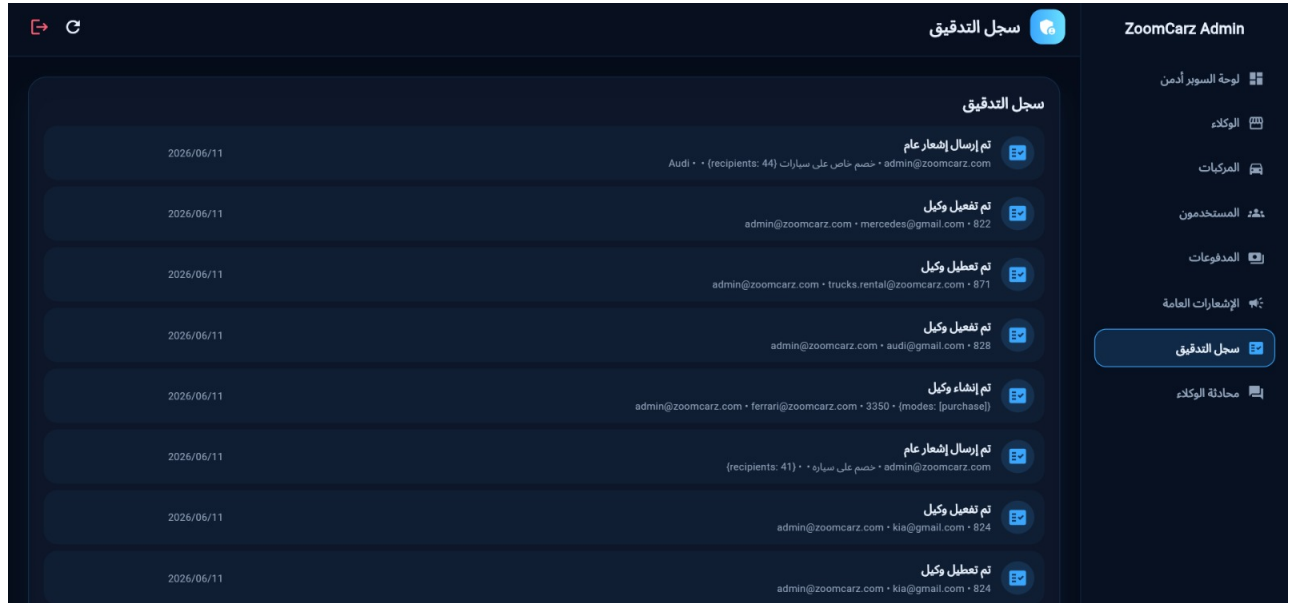


Figure 4.66 Audit Log and Administrative Activity Tracking

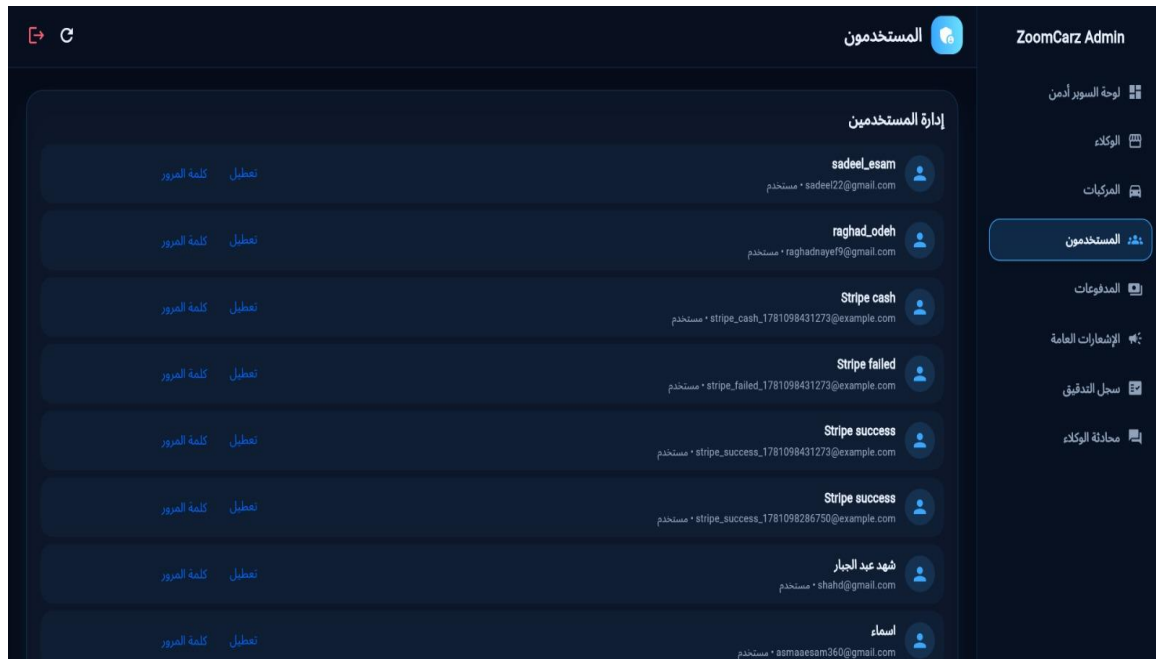


Figure 4.67 Super Admin User Management Module

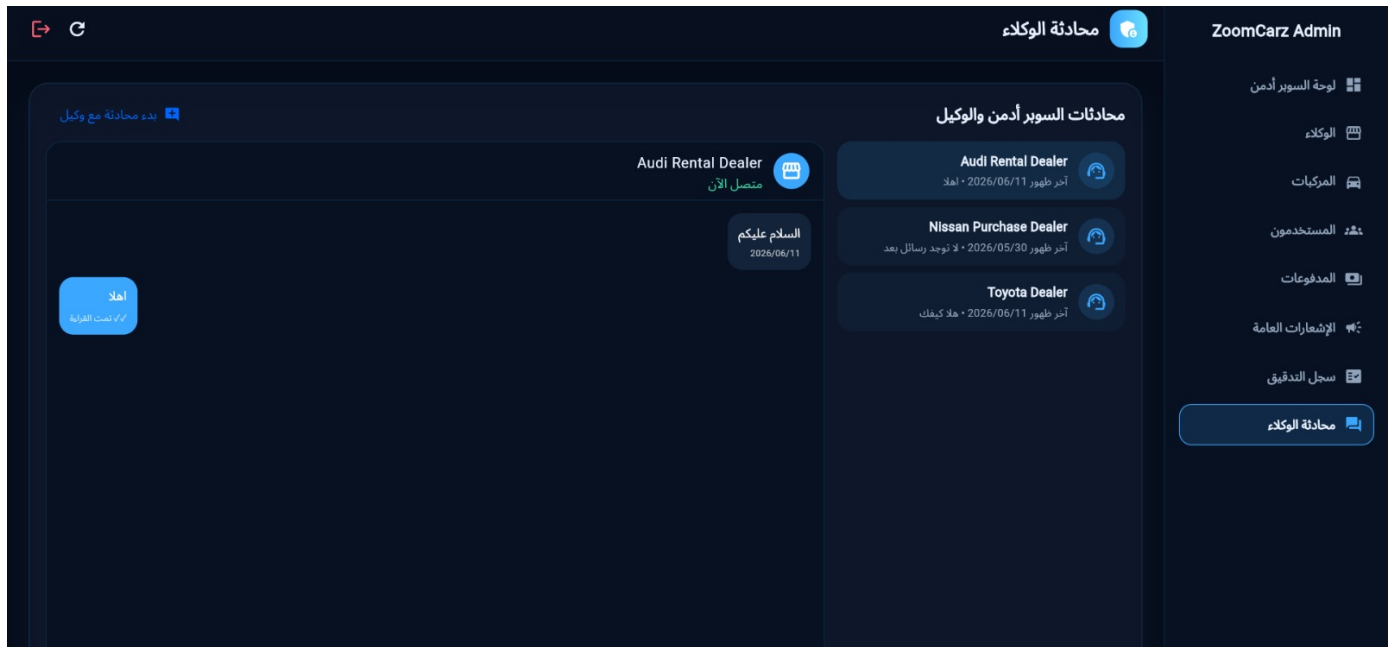


Figure 4.68 Super Admin and Dealer Communication Interface

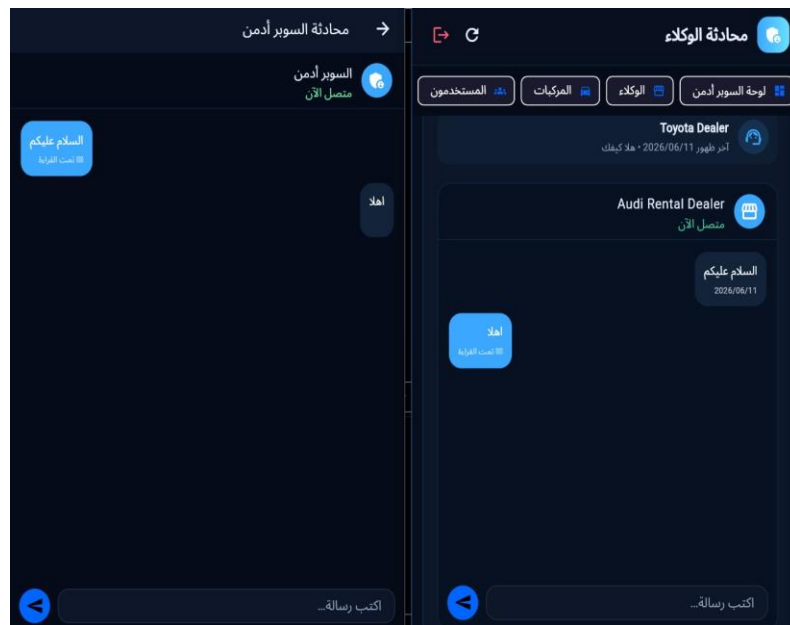


Figure 4.69 Super Admin–Dealer Chat Interface

The following figures illustrate the vehicle management module available to the Super Admin within the ZoomCarz platform. Through this interface, the administrator can browse and manage all vehicles registered by dealerships, apply filtering options, and access detailed vehicle information. The module provides a centralized inventory management system that enables efficient monitoring of vehicle records, availability status, specifications, and pricing information, supporting effective platform administration and vehicle oversight.

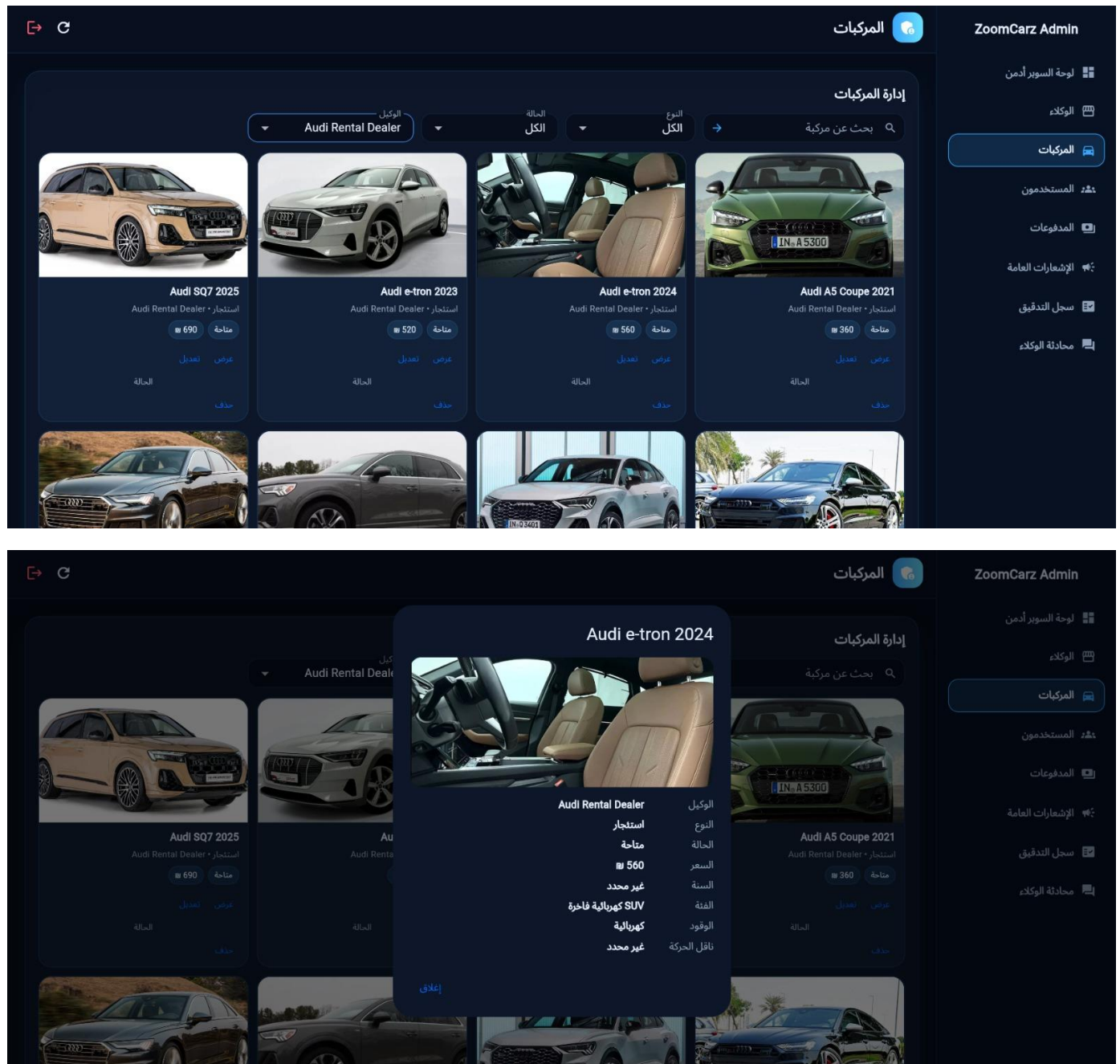


Figure 4.70 Vehicle Listing and Detailed Information View

This interface allows the Super Admin to update and manage vehicle information within the platform. The administrator can modify vehicle details such as the vehicle name, model, year, price, category, fuel type, and description, as well as update the vehicle's availability status. This functionality ensures that vehicle records remain accurate, up-to-date, and consistent across the system, providing users with reliable and current information when browsing available vehicles.

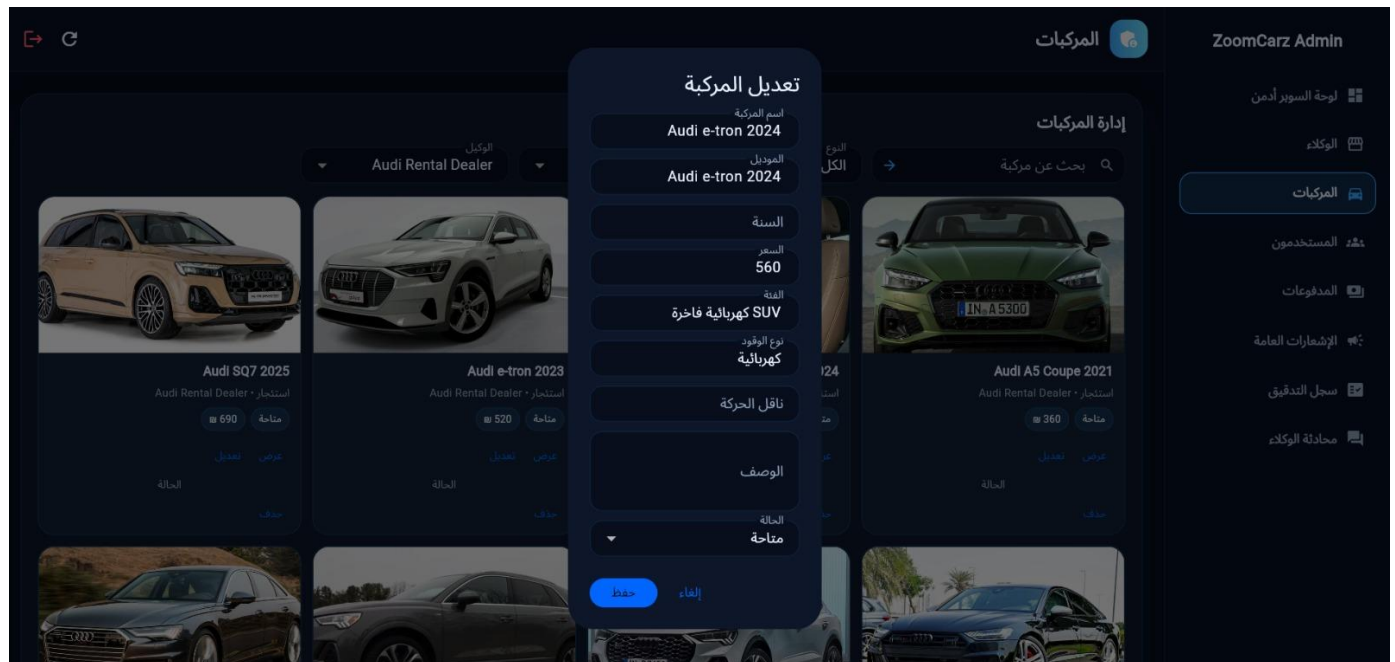


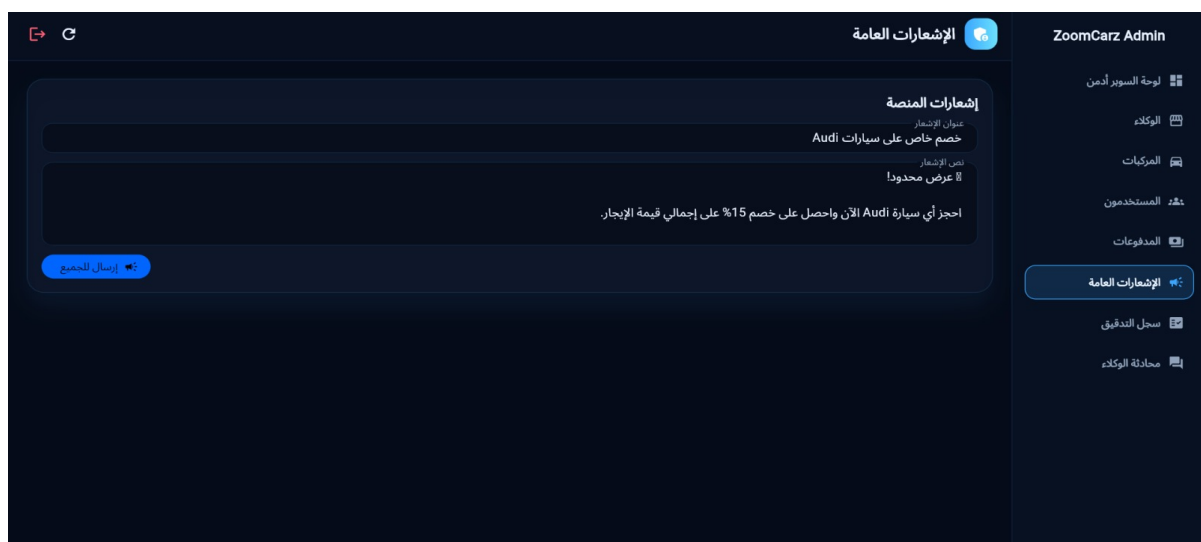
Figure 4.71 Vehicle Information Editing Interface

The Super Admin module provides centralized control over platform payments and system-wide announcements. Through the payment management interface, the administrator can monitor all rental and purchase transactions, review payment methods, track payment statuses, and verify completed or pending payments across different dealers and customers. Additionally, the platform announcement feature enables the Super Admin to create and distribute important notifications, promotions, and updates to all users. These capabilities improve financial oversight, enhance communication efficiency, and ensure that users remain informed about the latest platform services and offers.



رقم الدفع	المستخدم	الوكيل	المركبة	الطريقة	المبلغ	الحالة	التاريخ
rental-42	سديل عصام نجديه	Audi Rental Dealer	Audi A5 Coupe 2021	كاش	ILS 0	غير مدفوعة	2026/06/11
rental-39	رغد نايف عودة	Audi Rental Dealer	Audi A4 Salon 35 TFSI 2021	Stripe	ILS 310	قيد الانتظار	2026/06/10
rental-40	رغد نايف عودة	Audi Rental Dealer	Audi A4 Salon 35 TFSI 2021	Stripe	ILS 310	قيد الانتظار	2026/06/10
rental-41	رغد نايف عودة	Audi Rental Dealer	Audi A4 Salon 35 TFSI 2021	Stripe	ILS 310	مدفوعة	2026/06/10
purchase-request-11	sadeel	Toyota Dealer	تويوتا هايلاندر هايبرد 2024	كاش	ILS 255000	قيد الانتظار	2026/06/10
purchase-request-7	sadeel	Kia Dealer	Kia EV6	كاش	ILS 230000	قيد الانتظار	2026/06/10
rental-35	Stripe Success	Honda Rental Dealer	Honda Accord Hybrid EX-L 2025	Stripe	ILS 580	مدفوعة	2026/06/10
rental-37	Stripe Failed	Honda Rental Dealer	Honda Accord Hybrid EX-L 2025	Stripe	ILS 580	فشلت	2026/06/10
rental-38	Stripe Cash Control	Honda Rental Dealer	Honda Accord Hybrid EX-L 2025	كاش	ILS 0	قيد الانتظار	2026/06/10
rental-36	Stripe Success	Honda Rental Dealer	Honda Accord Hybrid EX-L 2025	Stripe	ILS 580	مدفوعة	2026/06/10

Figure 4.72 Super Admin payment management and transaction monitoring interface



عنوان الإشعار	محتوى الإشعار	إرسال للجميع
خصم خاص على سيارات Audi	نس إشعار لا عرض محدودا	احجز أي سيارة Audi الآن واحصل على خصم 15% على إجمالي قيمة الإيجار.

Figure 4.73 Super Admin platform-wide announcements and notification management interface.

This feature demonstrates the platform-wide notification system managed by the Super Admin. After creating and sending an announcement, the notification is automatically delivered to all users within the ZoomCarz platform. Users receive the notification through the notification center alongside other system alerts, booking updates, and messages. This functionality enables efficient communication, promotes special offers, and ensures that important announcements reach all users in real time.

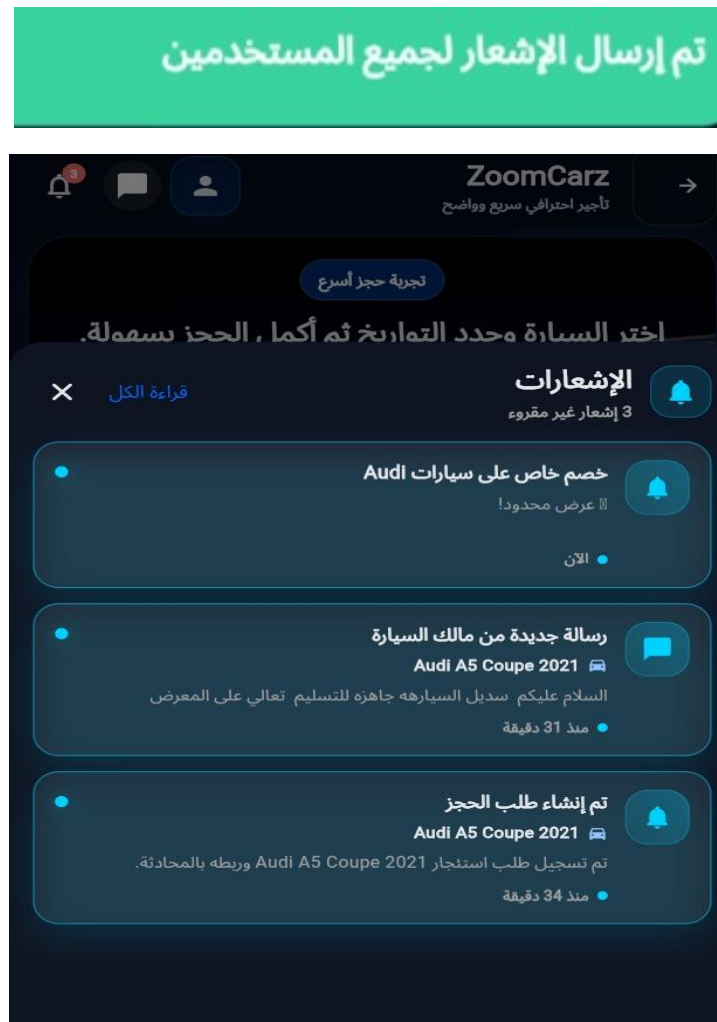


Figure 4.74 Successful delivery of a platform-wide notification to all users through the notification center

This interface allows the Super Admin to manage registered dealers within the ZoomCarz platform. The administrator can view dealer information, monitor dealership activity, enable or disable accounts, reset passwords, edit dealer details, and communicate directly with dealership owners. This centralized management process ensures effective control over dealership operations and maintains the reliability of the platform.

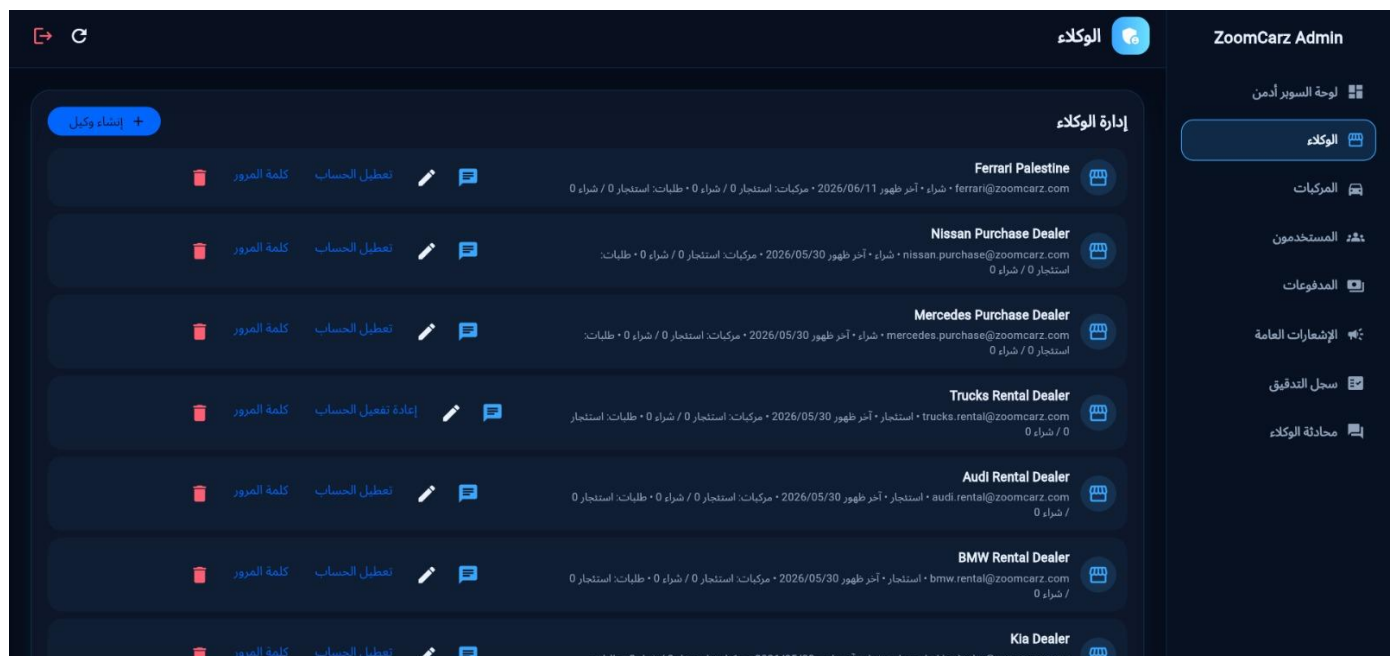


Figure 4.75 Super Admin dealer management and account control interface

4.6.1 AI Car Editor Module

presents the AI Car Editor module integrated into the ZoomCarz platform. This feature allows users to upload a vehicle image and describe the desired modifications using natural language. The artificial intelligence model analyzes the request and generates an edited version of the vehicle image while preserving the original vehicle structure. Users can customize elements such as wheel design, rim color, body appearance, lighting effects, and visual styles, then save or download the generated results. This functionality enhances user engagement by providing an interactive and personalized vehicle customization experience powered by artificial intelligence.

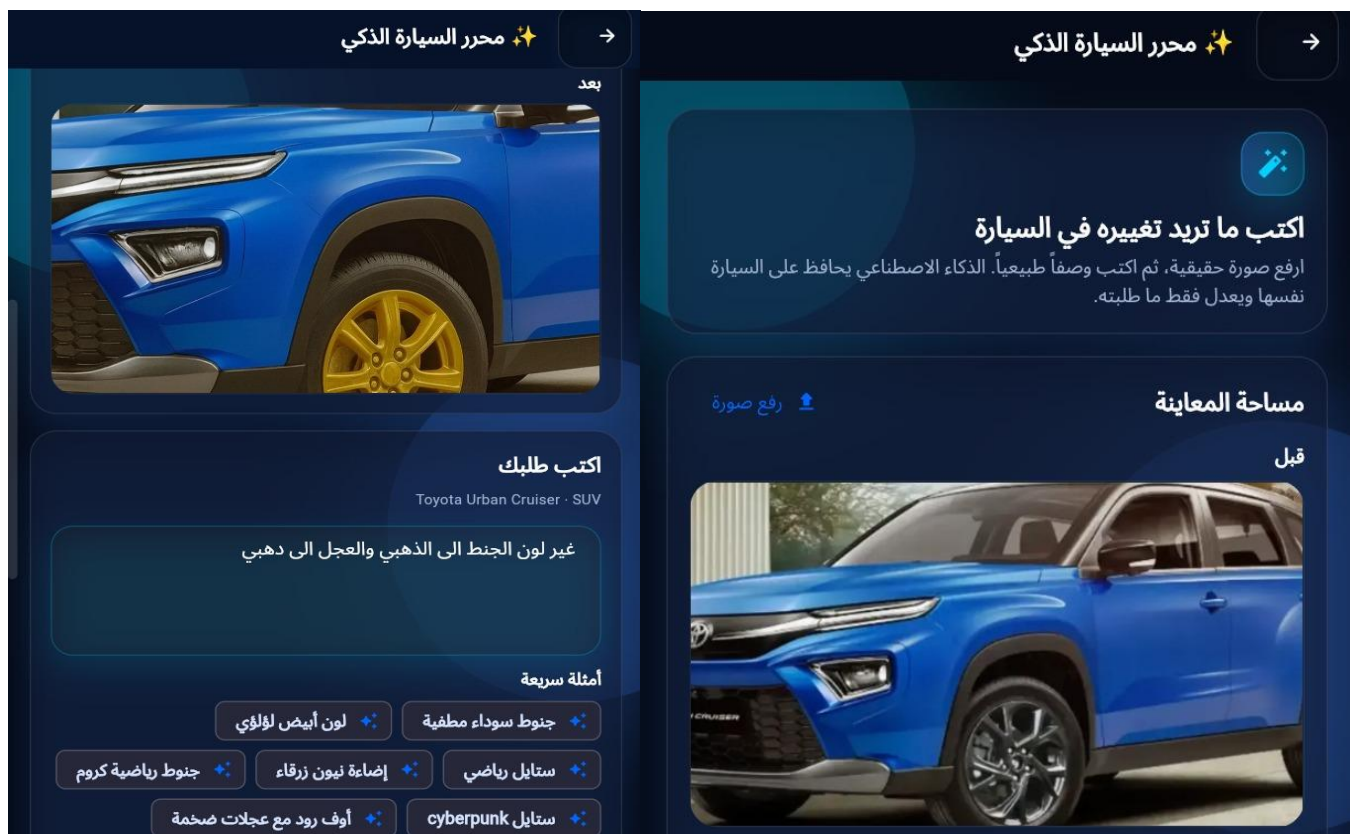


Figure 4.76 shows the AI Car Editor feature, allowing users to modify vehicle appearance using artificial intelligence and text-based instructions

This screen presents the AI modification history feature, where generated vehicle customization results are stored after the editing process is completed. Users can review previously generated designs, save the edited image, download it for future use, or remove it from the history. The feature provides a convenient way to manage AI-generated vehicle customizations while preserving the results for later reference and comparison.

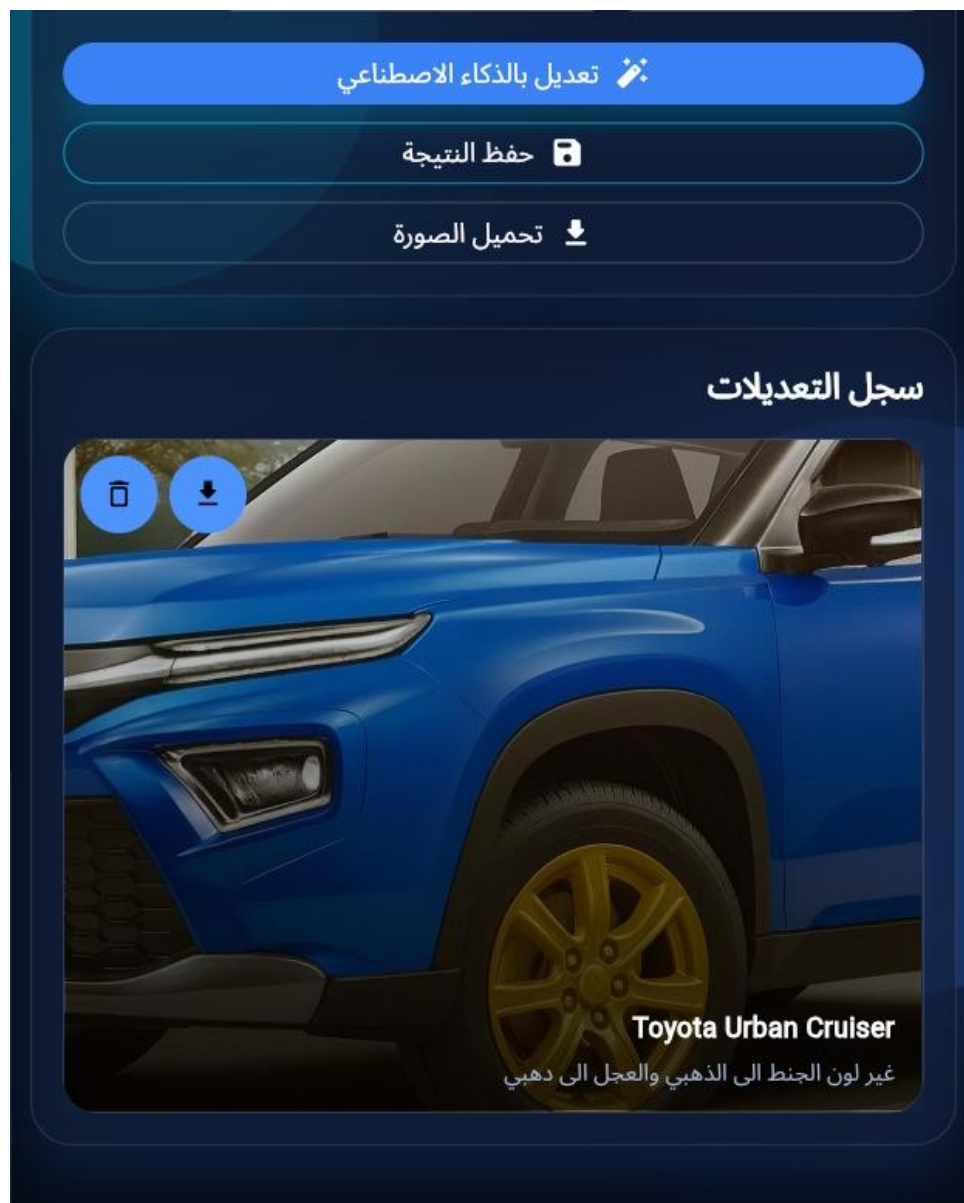


Figure 4.77 AI-generated vehicle customization result stored in the modification history

4.6.2 AI Assistant Module

The AI Assistant integrated within the ZoomCarz platform. The assistant helps users interact with the system through natural language conversations and provides intelligent recommendations based on available vehicle data. It supports both rental and purchasing services by answering user inquiries, suggesting suitable vehicles according to preferences and budget, and guiding users through different platform functionalities. The integration of artificial intelligence enhances user experience, simplifies decision-making, and provides instant access to relevant information without requiring manual navigation through the system.



Figure 4.78 Intelligent AI Assistant for Vehicle Recommendations

4.7 Purchase Module

4.7.1 Vehicle Purchase Interface

The module allows users to browse vehicles available for sale through a dedicated interface designed to simplify the purchasing process. Users can view featured vehicles, browse different brands, access detailed vehicle information, and review prices and availability before making a purchase decision. The module provides an organized and user-friendly environment that enhances the car-buying experience and enables users to easily explore and select suitable vehicles according to their preferences and budget.

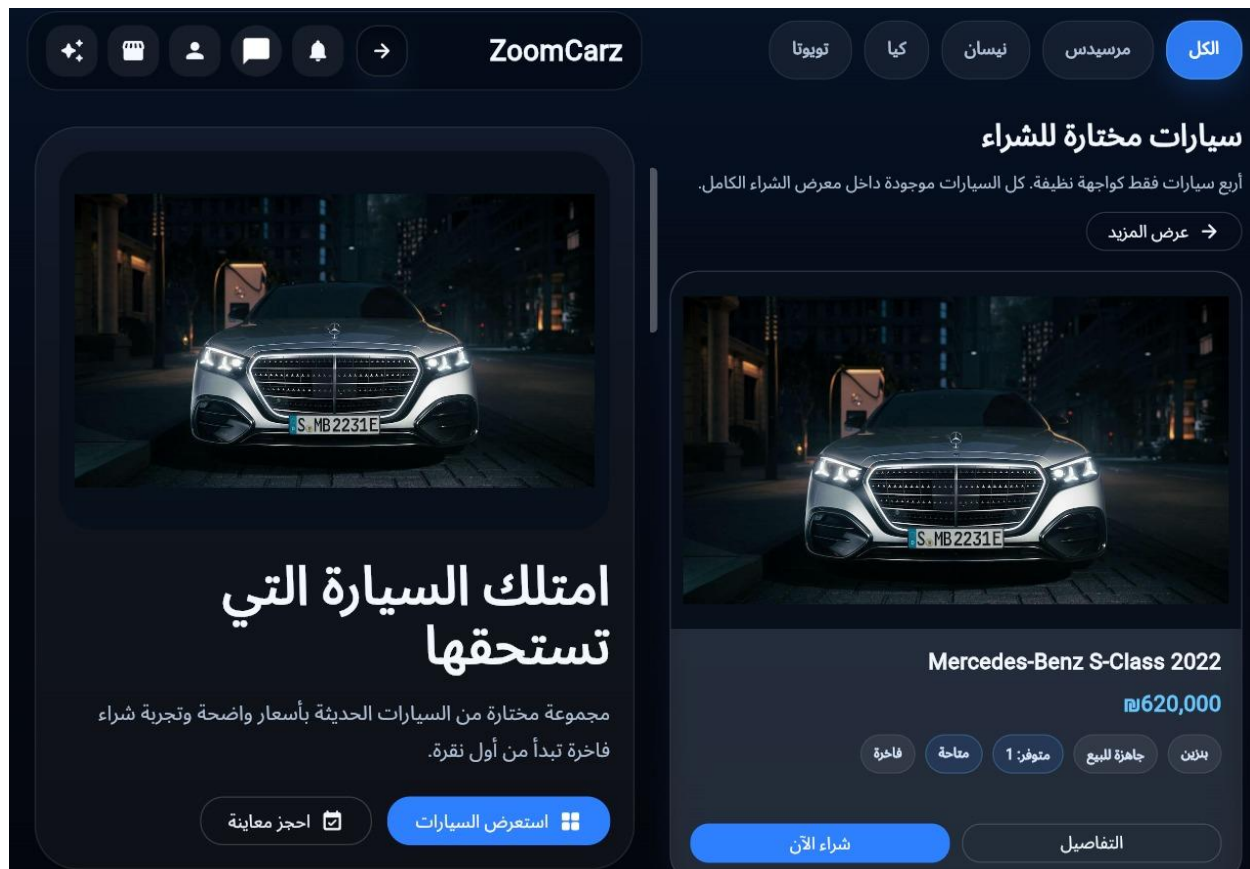


Figure 4.79 Vehicle purchase interface

The vehicle purchase module allows users to browse available vehicles through an organized and user-friendly interface. Users can explore different brands, view vehicle specifications, compare prices, and access detailed information before making a purchase decision. In addition, the system provides a vehicle inspection booking feature, enabling customers to schedule an appointment to physically inspect the vehicle before completing the purchase process. This functionality helps users make informed decisions and enhances confidence in the buying experience.

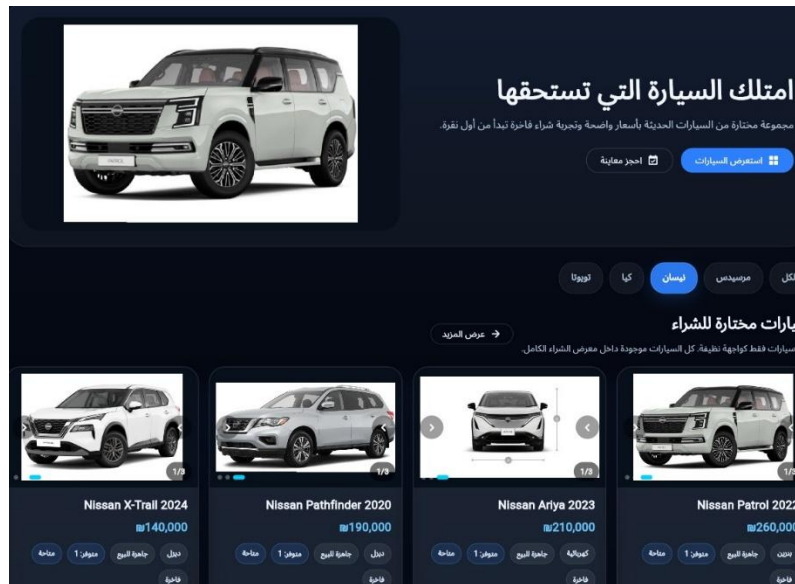


Figure 4.80 Nissan vehicles available for purchase and inspection booking

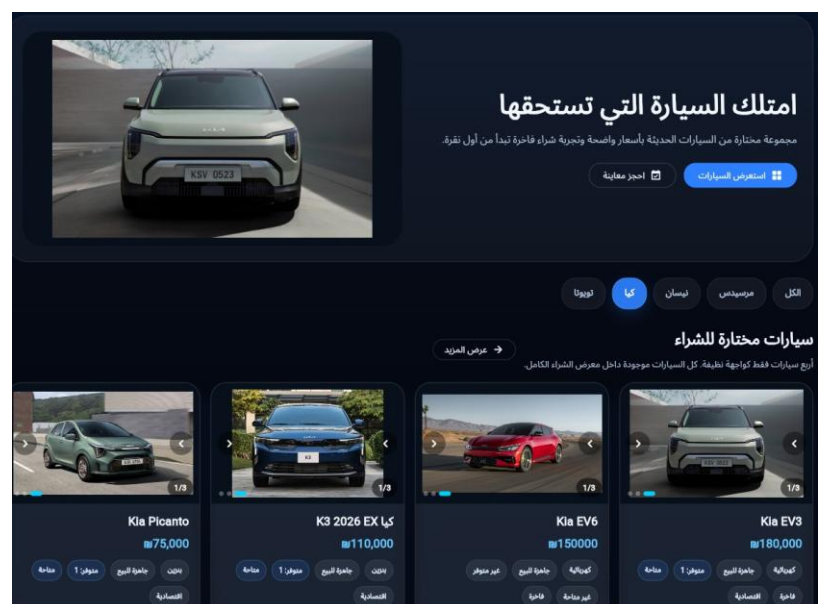


Figure 4.81 Kia vehicles available for purchase and inspection booking

4.7.2 Accessories and Additional Services Module

The interface allows users to browse and purchase additional vehicle accessories, such as wireless chargers and interior LED lighting systems, through a simple shopping experience. Users can add products directly to the cart while viewing prices and product descriptions. The module also promotes related services by providing quick navigation between vehicle purchasing and rental sections, enhancing the overall user experience and increasing service accessibility within the platform.

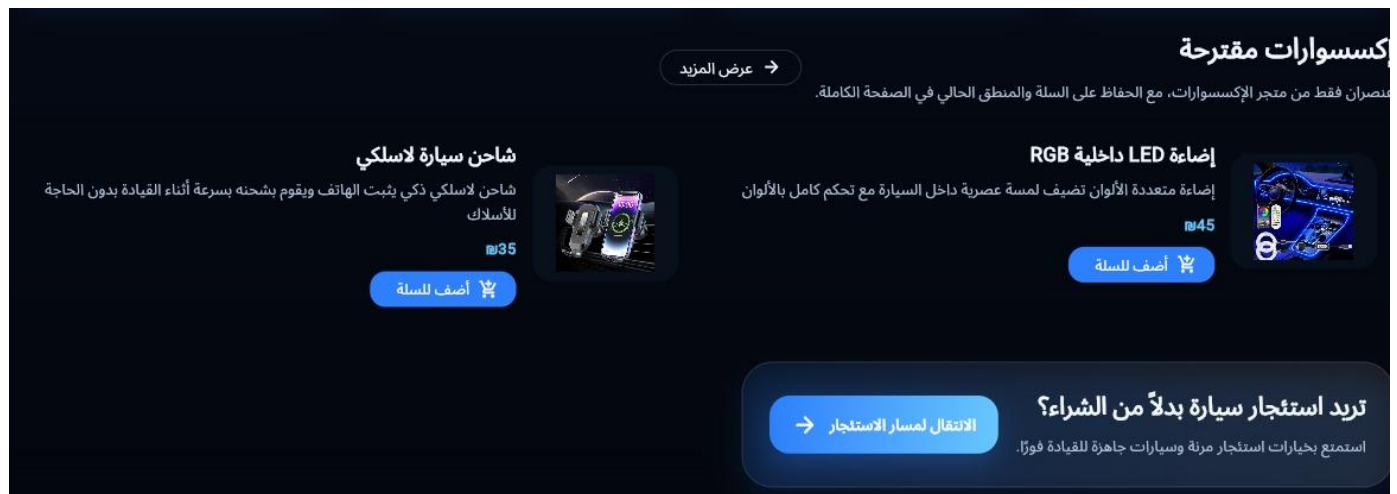


Figure 4.82 Available vehicle accessories

4.7.3 Buyer Profile and Notification Management

The interface allows users to manage their personal information, view favorite vehicles, track purchase requests, access conversations with dealers, and monitor account activities through a centralized profile page. In addition, the notification center keeps users informed about promotions, **offers, and important** updates related to their purchasing activities, ensuring continuous engagement and an improved user experience throughout the platform.

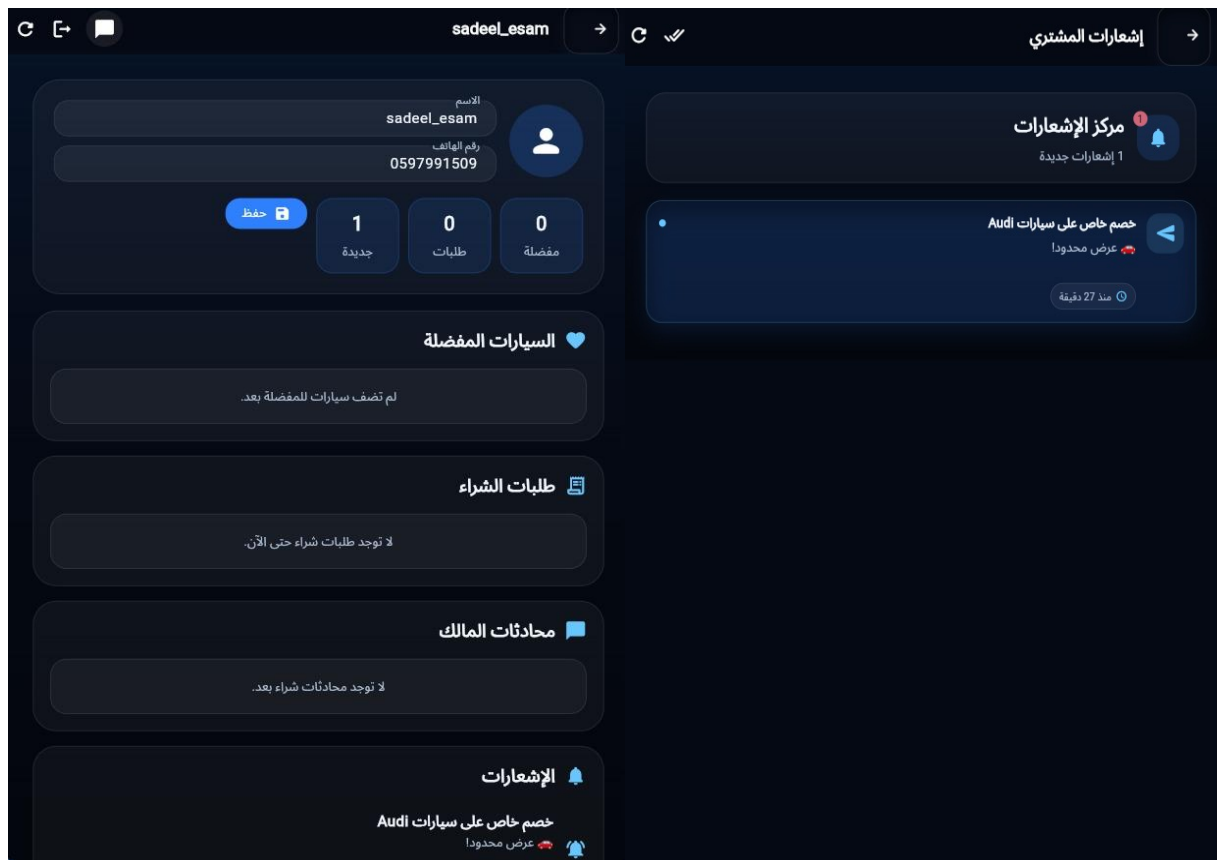


Figure 4.83 Customer profile management and notification system

4.7.4 Buyer Chat Screen

This screen represents the purchase chat section, where customers can communicate directly with vehicle dealers regarding purchase inquiries and negotiations. When no active conversations are available, the system displays a clear message indicating that there are currently no purchase-related chats. This interface provides a dedicated communication channel that becomes active once a customer initiates contact with a dealer.

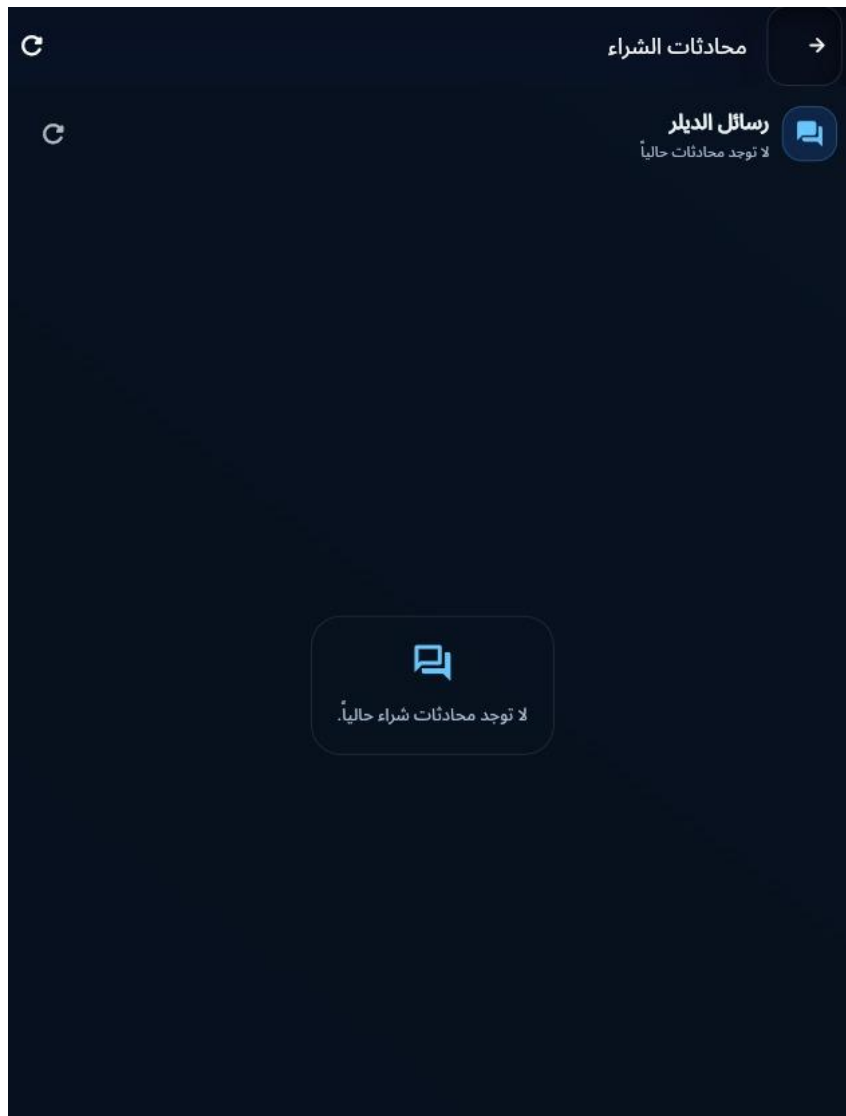


Figure 4.84 Purchase chat interface with no active conversations

4.7.5 Vehicle Purchase Process

This screen displays the vehicle details page within the purchase module. Users can view multiple vehicle images, review specifications, pricing, availability status, and detailed descriptions before making a purchase decision. The interface also provides options to purchase the vehicle, add it to favorites, or schedule an inspection appointment, creating a comprehensive and user-friendly car-buying experience.

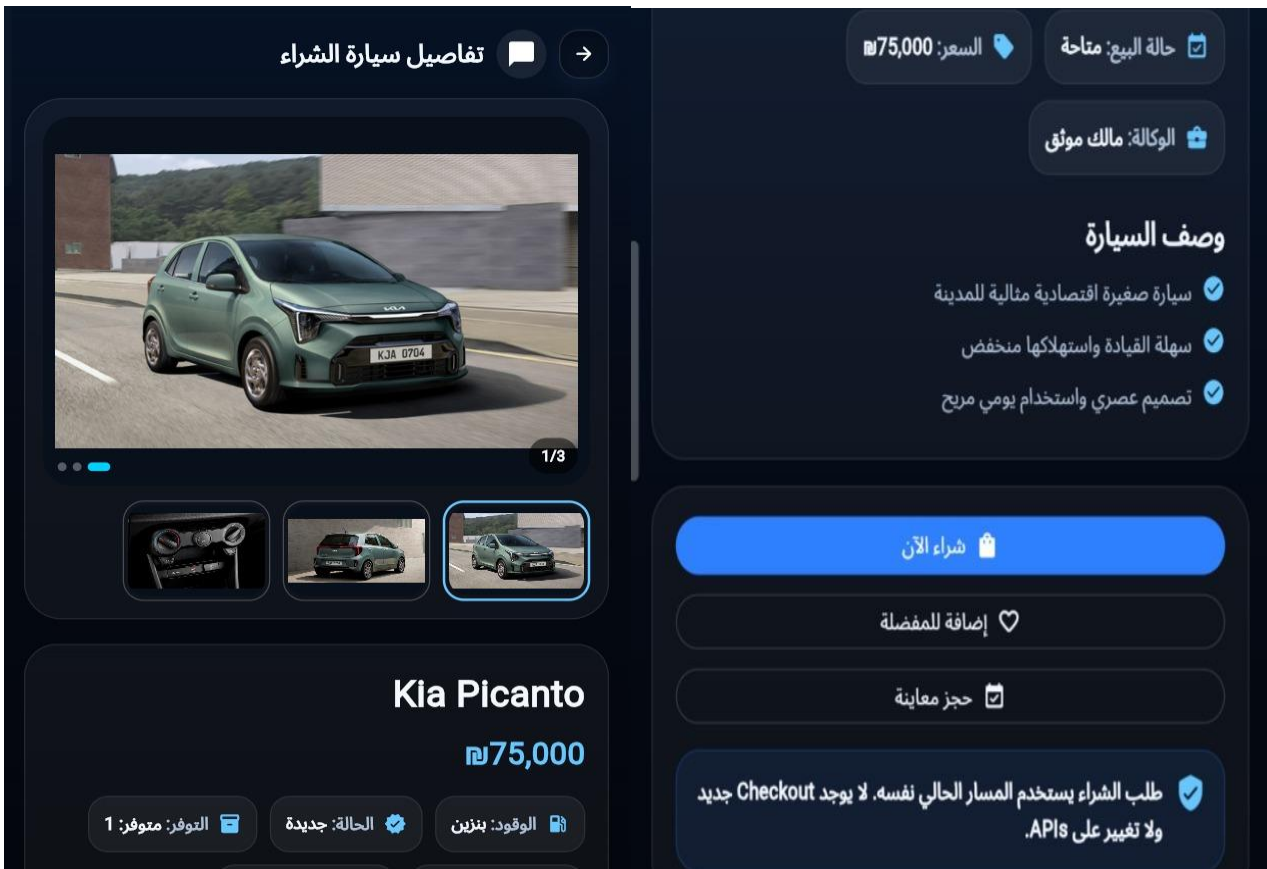


Figure 4.85 Vehicle details and purchase options interface

This screen represents the purchase checkout process, where customers can review the selected vehicle information before completing the transaction. The interface displays key details such as the vehicle model, price, engine specifications, production year, availability status, and payment method. By organizing all essential information in a single view, the system helps users verify their purchase details and proceed with confidence.

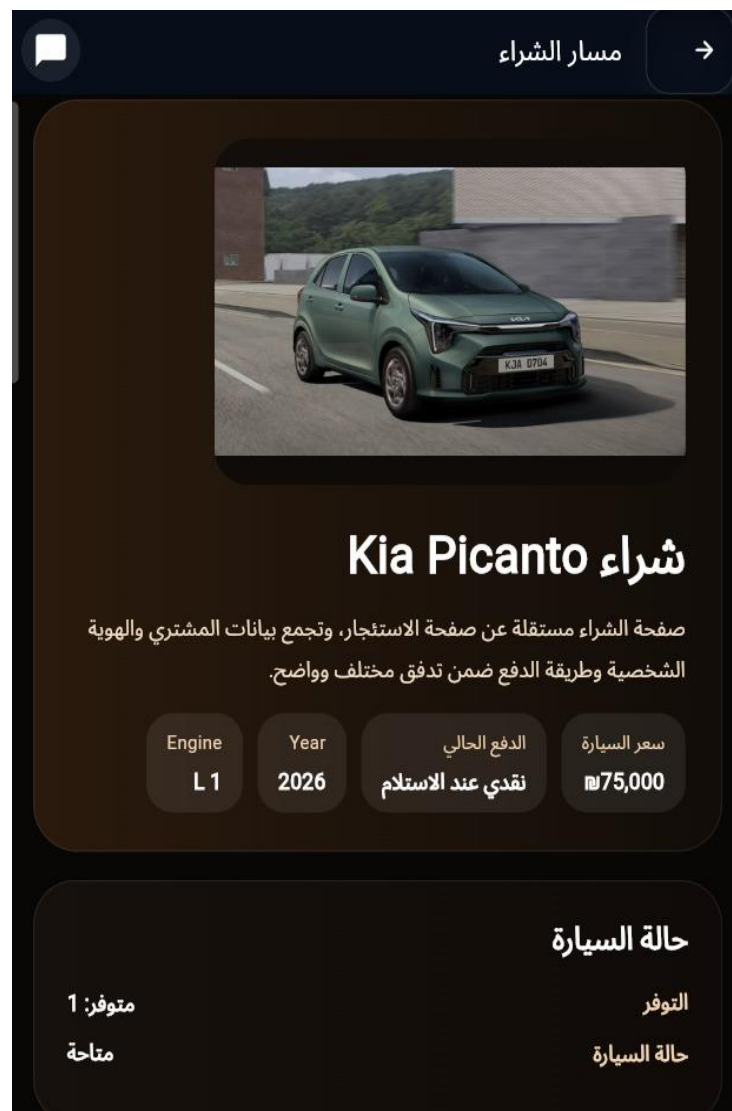


Figure 4.86 Vehicle purchase checkout interface

4.7.6 Vehicle Purchase Request and Payment Process

This screen illustrates the purchase information and payment process within the vehicle purchase module. Customers are required to enter their personal information, provide identification details, and select their preferred purchasing method, such as direct purchase, financing, or installment payment. The system also supports uploading identification documents and choosing a payment method, ensuring a secure and organized purchasing workflow.

The screenshot displays a mobile application interface for vehicle purchase. The top navigation bar is dark blue with a white chat icon on the left and a white arrow icon on the right. Below the navigation bar, the screen is divided into two main sections. The left section, titled 'بيانات المشتري' (Buyer Information), contains four input fields: 'الاسم الكامل' (Full Name) with the value 'sadeel_esam', 'رقم الهاتف' (Phone Number) with the value '0597991509', 'المدينة أو العنوان' (City or Address), and 'رقم الهوية الشخصية' (National ID Number). Below these fields is a section titled 'طريقة الشراء' (Purchase Method) with three buttons: 'تقسيط' (Installment), 'تمويل' (Financing), and 'شراء مباشر' (Direct Purchase), which is selected and marked with a checkmark. Below the buttons is a toggle switch labeled 'حجز معاينة قبل الإتمام' (Reserve before completion) and a text area labeled 'ملاحظات إضافية' (Additional notes). The right section, titled 'الهوية الشخصية وطريقة الدفع' (Personal Identity and Payment Method), contains two input fields for identification: 'هوية - الوجه الأمامي' (Front face ID) and 'هوية - الوجه الخلفي' (Back face ID). Below these fields is a button labeled 'نقدي عند الاستلام' (Cash on delivery), followed by two buttons labeled 'بطاقة فيزا' (Visa Card) and 'PayPal'.

Figure 4.87 Customer information and payment method selection during the purchase process

This screen presents the final purchase order summary before confirming the transaction. Customers can review all purchase details, including the selected vehicle, price, purchase method, payment option, and inspection status. After verifying the information, the customer confirms the order and proceeds with the required payment and ownership transfer procedures.

ملخص طلب الشراء

Kia Picanto	السيارة
75,000	السعر
شراء مباشر	المسار
نقدي عند الاستلام	طريقة الدفع
مطلوبة	المعاينة

☒ أؤكد جدية الطلب والاستعداد لإكمال إجراءات الدفع ونقل الملكية.

متابعة إجراءات الشراء

Figure 4.88 Purchase order summary and confirmation interface

4.7.7 Purchase Request Management and Notifications

The purchase request management module for dealers. The system notifies dealers when a new purchase request is submitted and allows them to review request details, communicate with buyers, and approve or reject purchase requests. This functionality helps streamline the purchasing workflow and ensures efficient interaction between buyers and dealers throughout the transaction process.



Figure 4.89 Purchase request notifications and dealer review interface

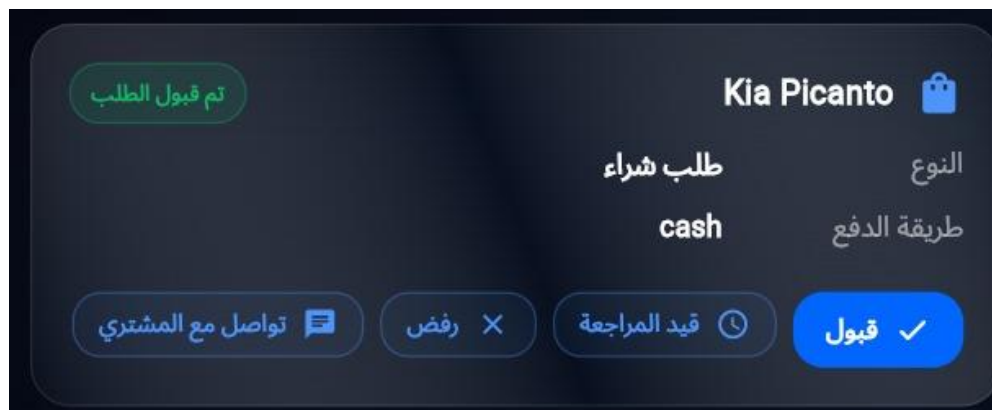


Figure 4.90 Dealer review and approval of a purchase request

Chapter 5: Conclusions and Recommendations

5.1 Conclusions

This project presented ZoomCarz, an integrated smart platform designed to simplify and digitalize vehicle rental and purchasing services through a unified web and mobile application. The developed system successfully combined multiple functionalities, including vehicle rental, vehicle purchasing, dealer management, delivery management, online payments, real-time communication, notifications, GPS tracking, and artificial intelligence services within a single platform.

The implementation of the project demonstrated the effectiveness of modern software technologies in creating a comprehensive automotive service solution. The platform provided different user roles, including renters, buyers, dealers, delivery staff, and administrators, allowing each user category to perform its tasks efficiently through dedicated interfaces and management tools.

The integration of real-time communication, intelligent assistance, location tracking, and secure authentication mechanisms improved the overall user experience and enhanced operational efficiency. Furthermore, the use of Flutter, Node.js, PostgreSQL, Socket.IO, JWT, PayPal, and OpenAI APIs enabled the development of a scalable, secure, and maintainable system capable of supporting future growth and additional services.

Overall, the project achieved its primary objectives by providing a centralized platform that simplifies automotive-related services while improving communication, management, and accessibility for all users.

5.2 Recommendations

Several improvements can be implemented in future versions of the ZoomCarz platform to further enhance its capabilities and user experience. Additional payment gateways may be integrated to provide users with more flexible payment options. Advanced analytics and reporting tools can also be developed to assist dealers in monitoring business performance and customer behavior.

Furthermore, integrating advanced AI recommendation algorithms could improve vehicle suggestions based on user preferences and rental history. Mobile push notifications can be enhanced to provide more personalized and real-time updates. Additional security mechanisms and verification procedures may also be implemented to strengthen user protection and transaction reliability.

5.3 Future Work

Future development of ZoomCarz may include expanding the AI Car Editor with more customization options and enhanced image generation capabilities. The platform could also support additional services such as vehicle maintenance scheduling, insurance management, and roadside assistance integration.

Another potential enhancement is the implementation of advanced GPS tracking and route optimization features for delivery staff and rented vehicles. In addition, machine learning techniques can be utilized to predict customer preferences and optimize vehicle recommendations.

The system can also be expanded to support multiple cities and regions, enabling wider commercial deployment and increasing its scalability. These improvements would further strengthen the platform and contribute to creating a more intelligent and comprehensive automotive ecosystem.

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