



MANSOURA UNIVERSITY
FACULTY OF COMPUTERS AND INFORMATION
INFORMATION TECHNOLOGY DEPARTMENT

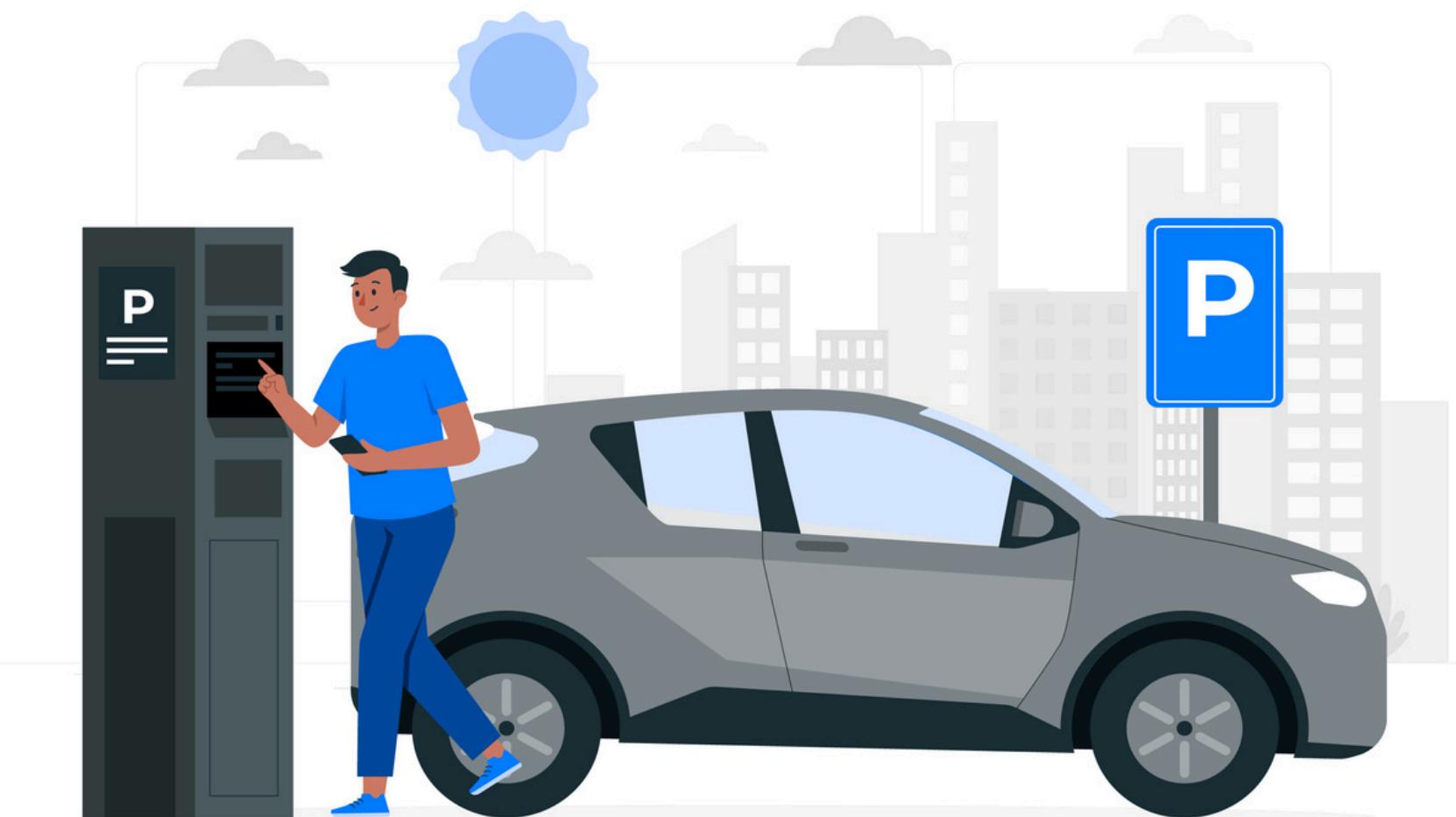


SMART PARKING SYSTEM BASED ON IOT

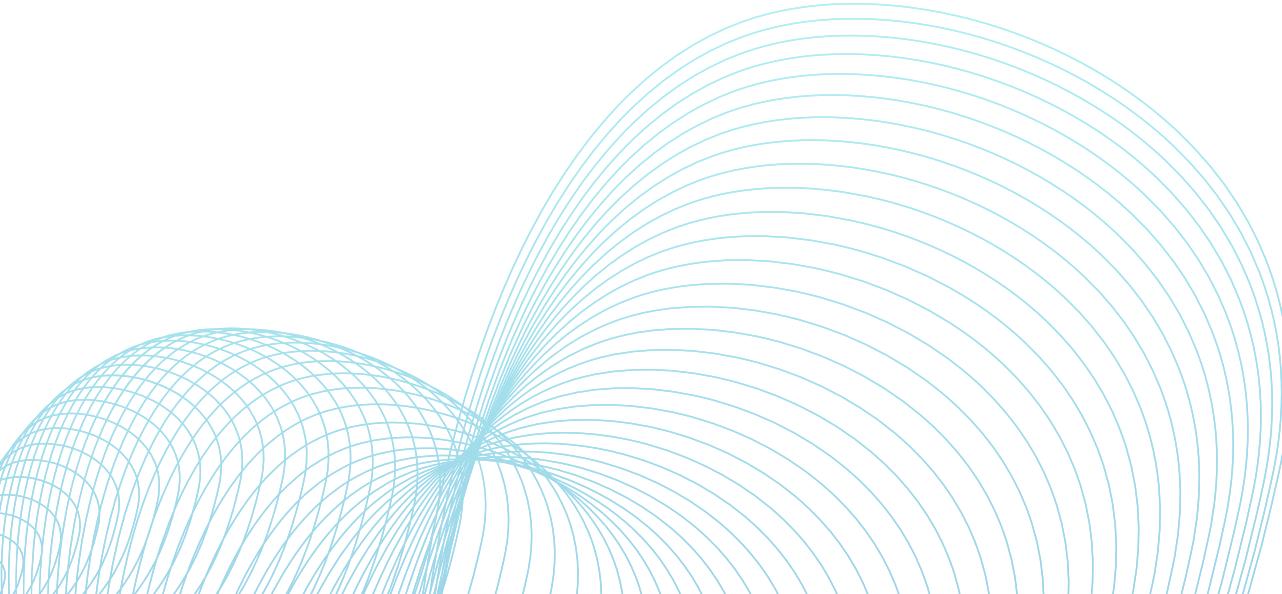
SUPERVISED BY
DR. HEBA KANDIL & DR. HALA AHMED

AGENDA

- Introduction
- Problem Statement
- Related Work
- Project Goals
- Features
- Diagrams
- Tools & Technologies
- UI Screens
- IoT Devices
- Timeplan
- Conclusion
- Our Team
- References



PROBLEM STATEMENT



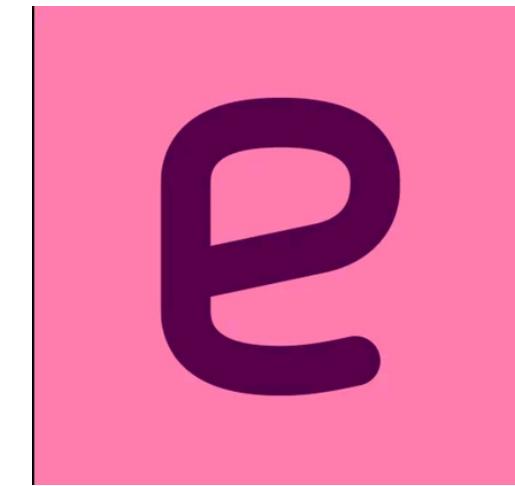
SIMILAR APPLICATIONS



PARKSTER



PARKCLICK



EASYPARK

RELATED WORK

Features	Rakna	EasyPark	Parkster	Parclick
Real-time Parking Spot Availability	✓	✓	✓	✓
Multiple Payment Methods	✓	✓	✓	✓
Cancellation of Bookings	✓	✗	✓	✗
Remote Reservation Extension	✓	✗	✗	✓
Additional Services	✓	✗	✗	✗
Indoor Parking Availability	✓	✗	✗	✓
Reservation History	✓	✓	✗	✓
Payment Reliability	✓	✗	✓	✗
App Stability	✓	✗	✓	✗
Multi-Device Compatibility	✓	✓	✗	✓
Attractive UI	✓	✓	✗	✗



DRAWBACKS OF SIMILAR APPLICATIONS

App Stability

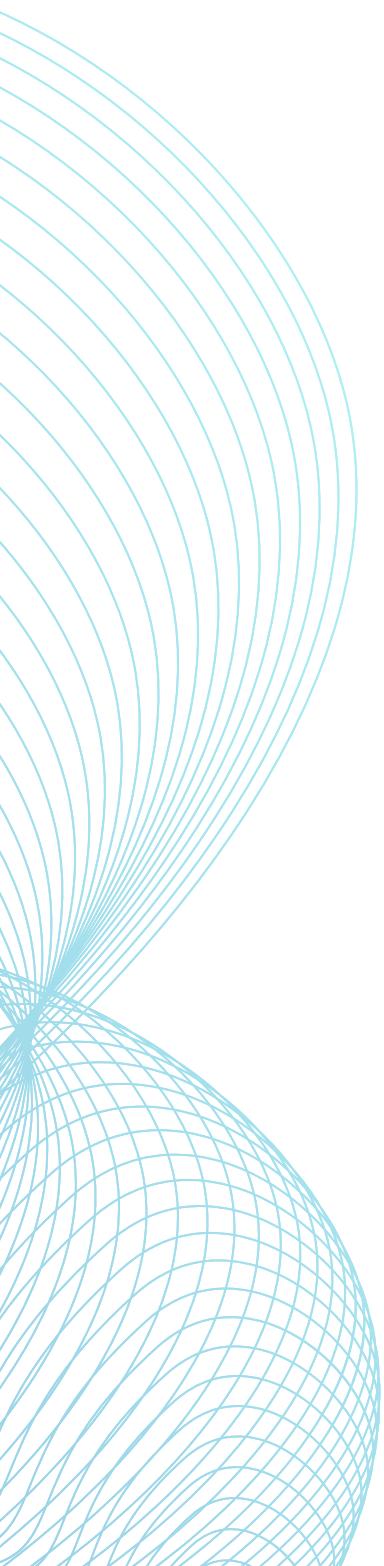
Cancellation of Bookings

**Remote Reservation
Extension**

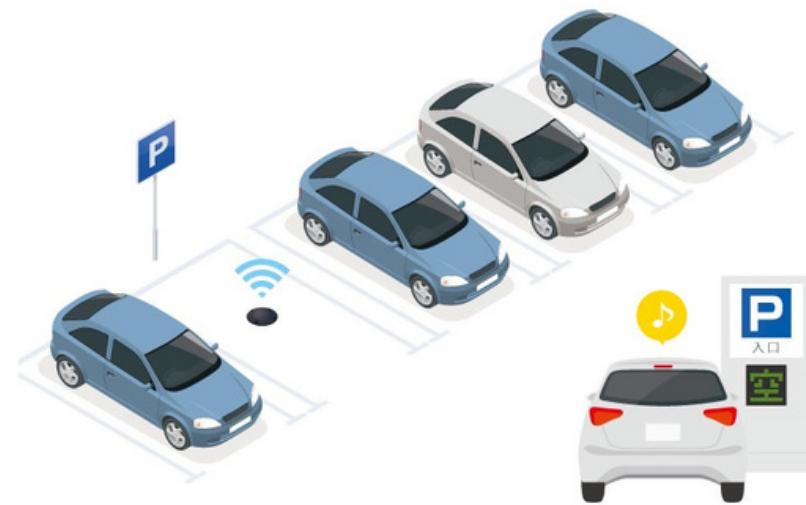
Additional Services



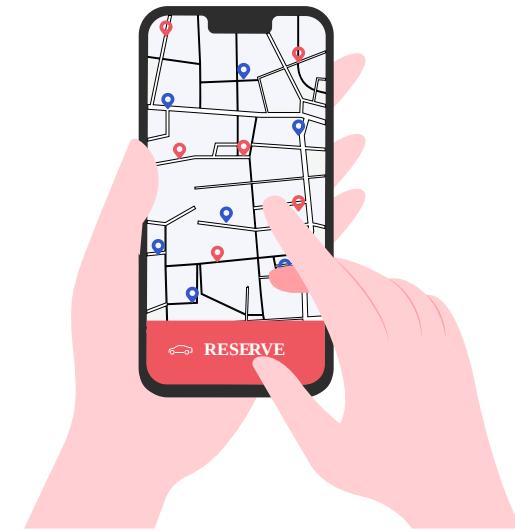
PROJECT GOALS



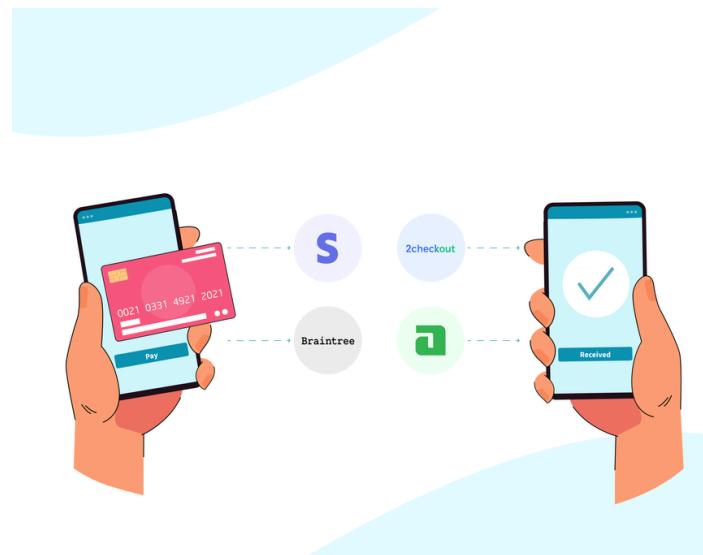
FEATURES



REAL-TIME PARKING SPACE AVAILABILITY



PARKING RESERVATION



MULTIPLE PAYMENT METHODS



ADDITIONAL SERVICES
(CARWACHING, CHANGE OIL , ETC)

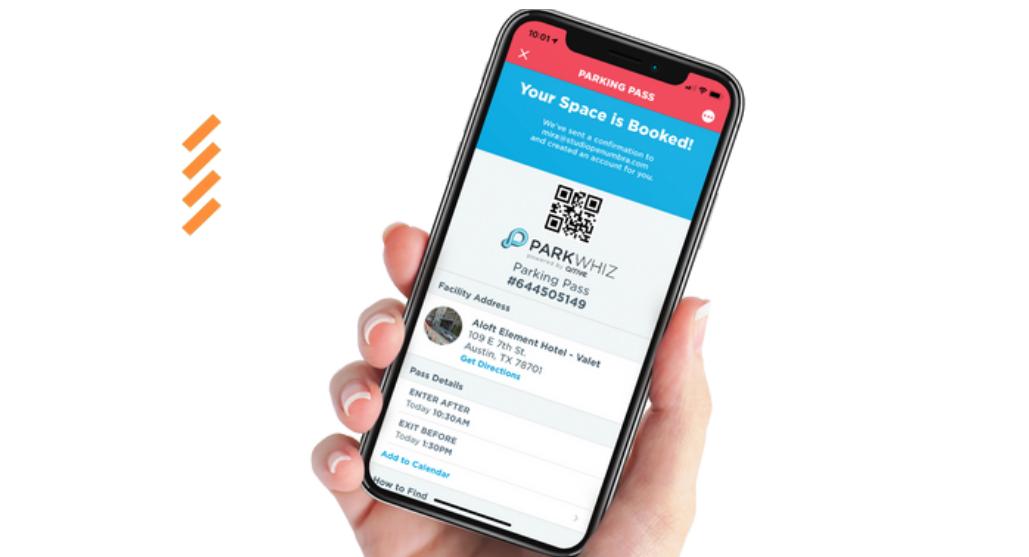
FEATURES



USER RATINGS AND REVIEWS



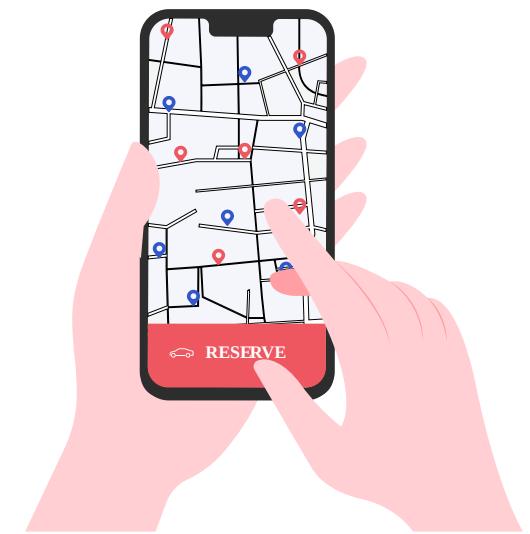
QR CODE GATE ACCESS



QR TICKET GENERATION

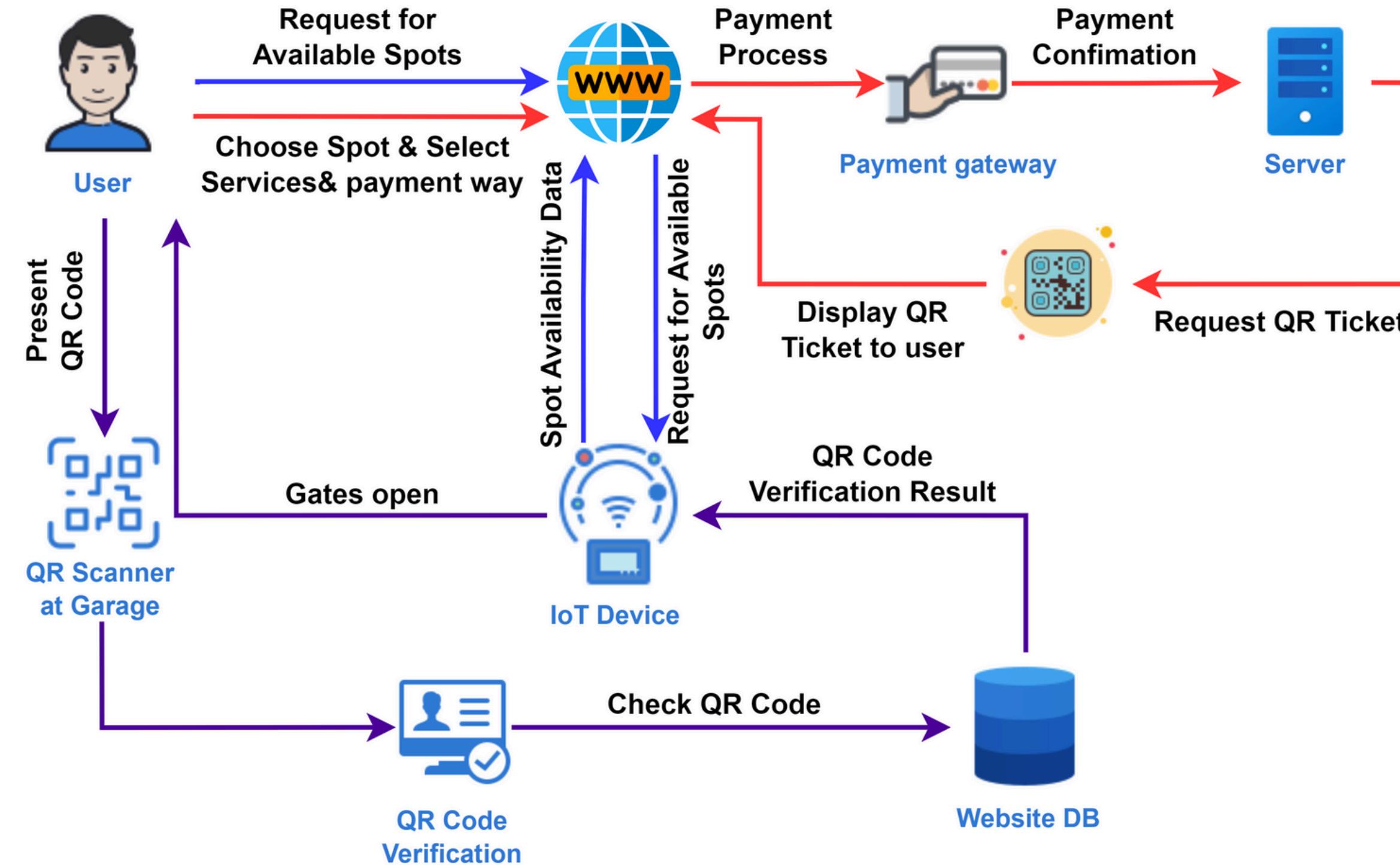


RESERVATION CANCELLATION

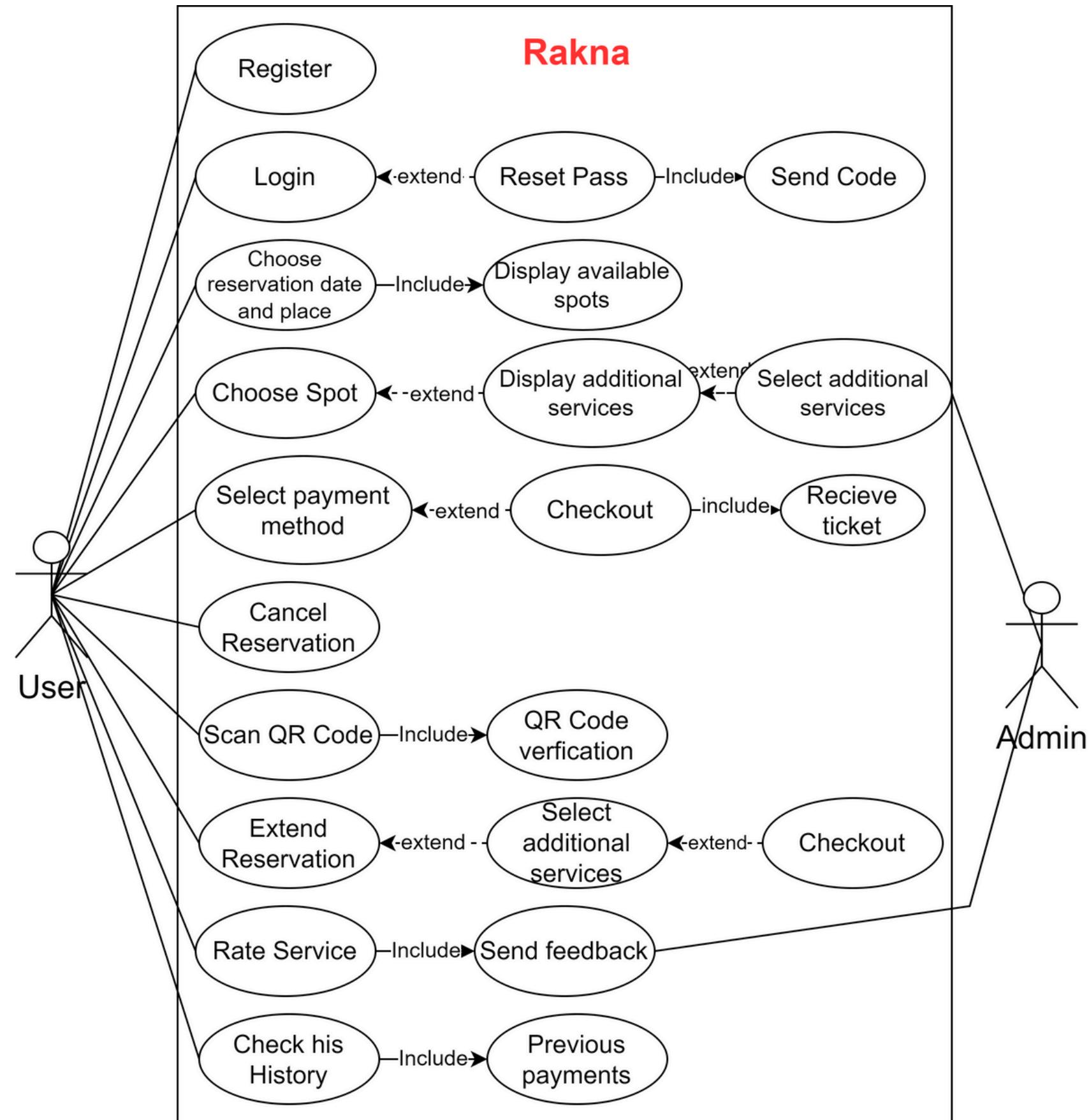


REMOTE RESERVATION EXTENSION

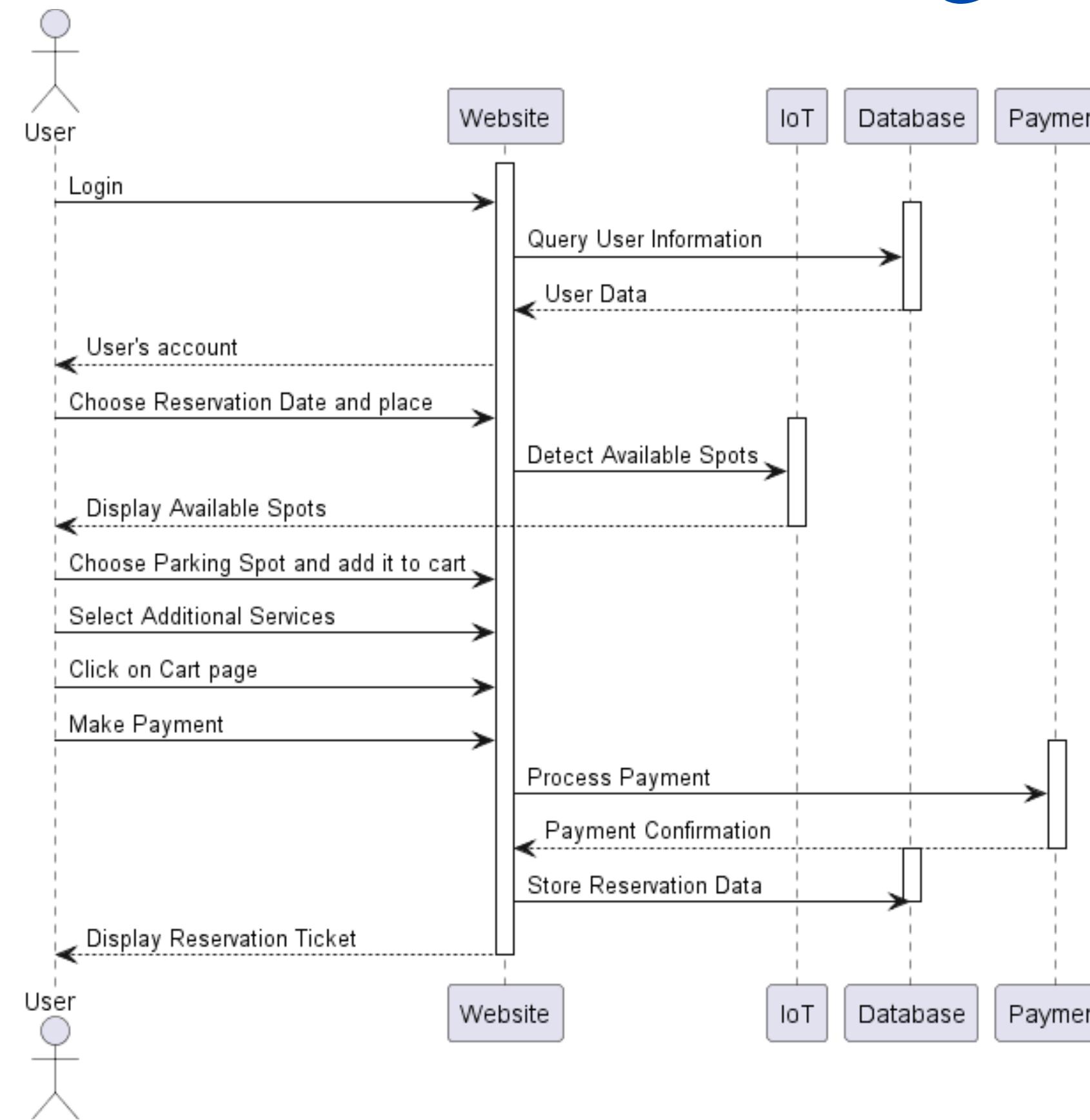
SYSTEM ARCHITECTURE



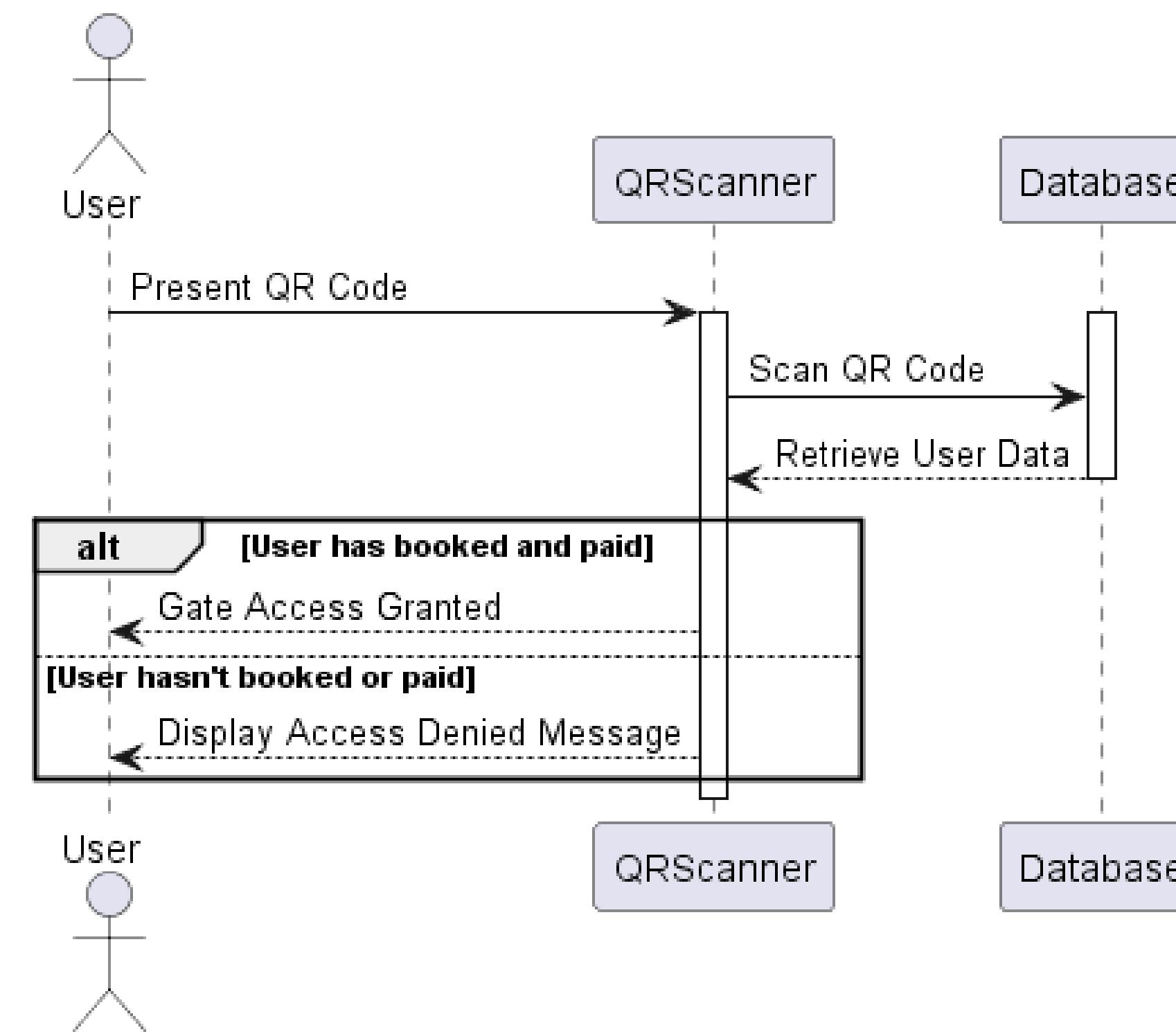
USECASE



RESERVATION SEQUENCE



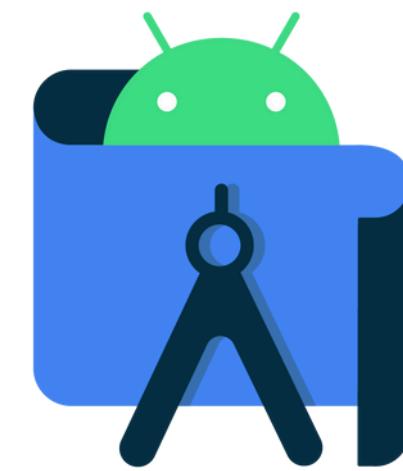
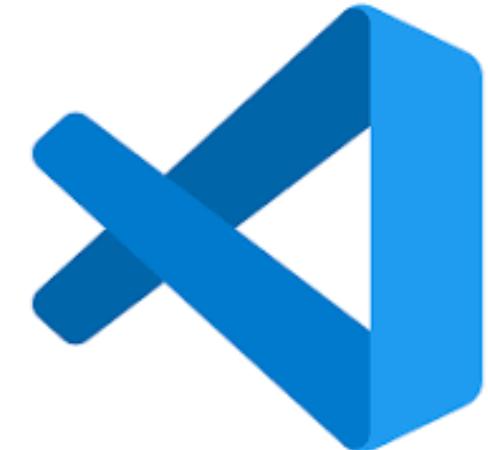
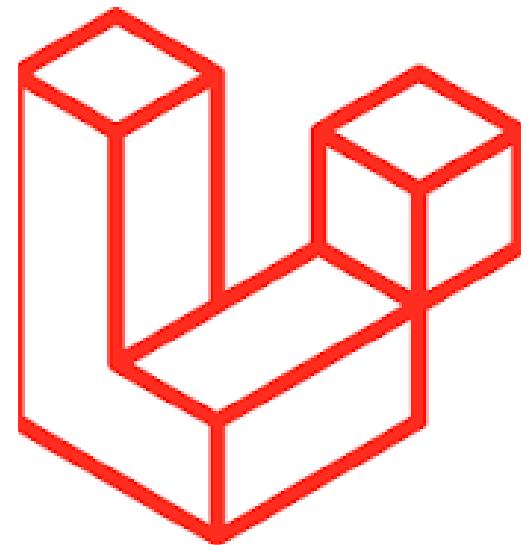
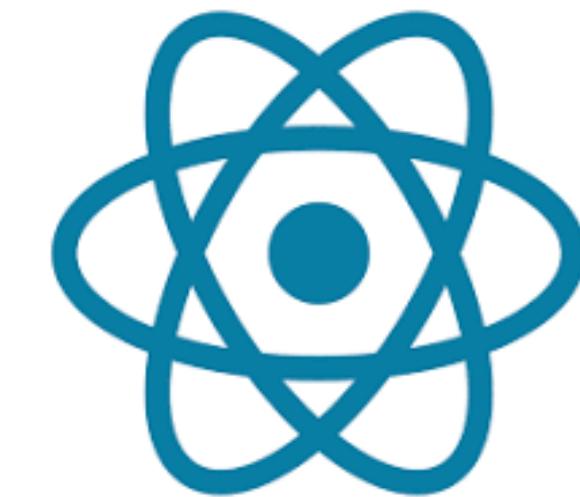
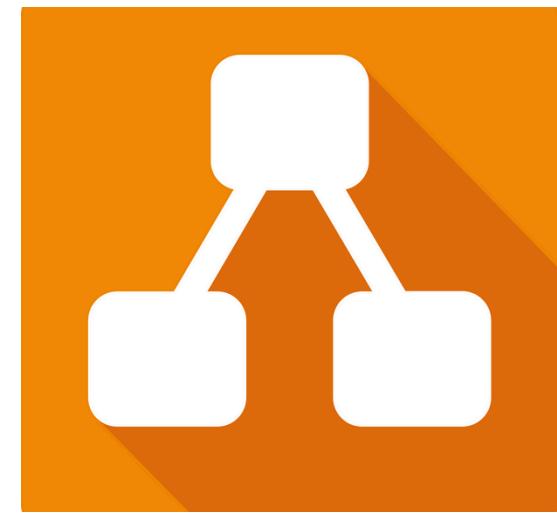
ACCESSING GARAGE SEQUENCE



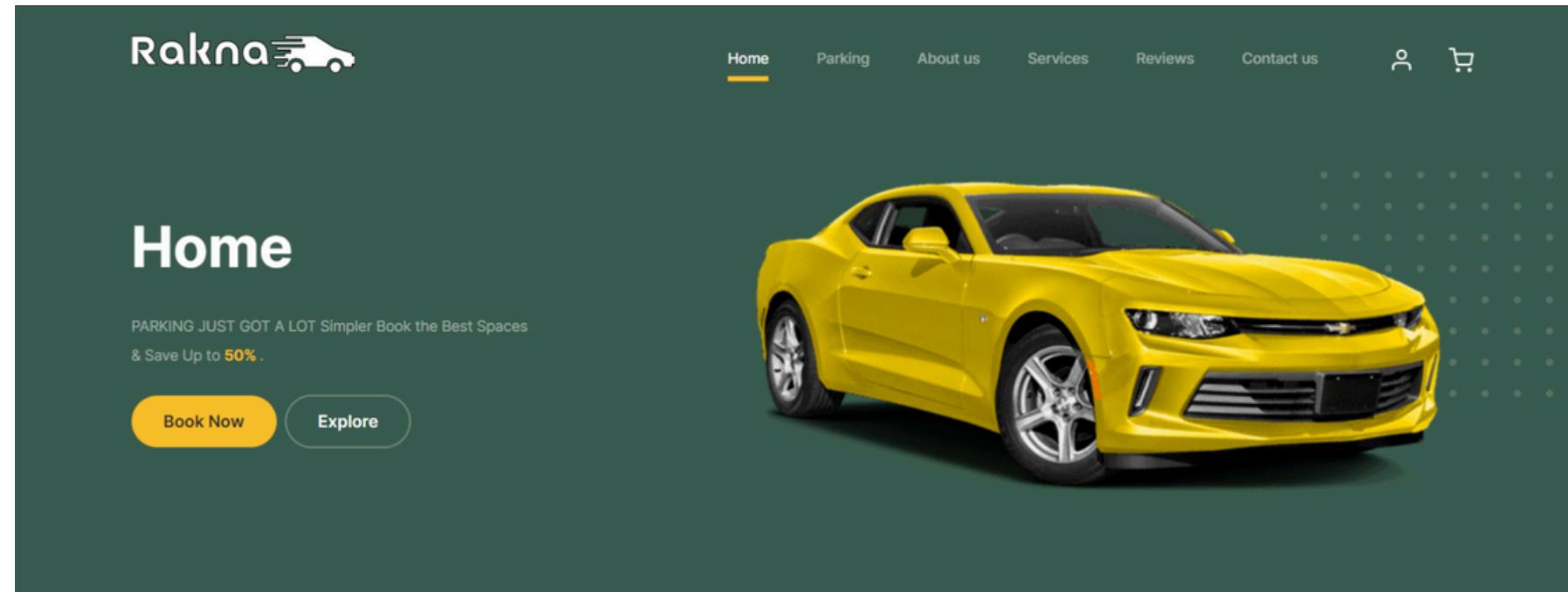
BUSINESS MODEL CANVAS

Business Model Canvas				
Key Partners	Key Activities	Value Propositions	Customer Relationships	Customer Segments
1) Service providers 2) IoT system providers 3) Payment gateway	1) Develop the website 2) Develop IoT infrastructure 3) Integrate payment gateways 4) Manage customer feedback	1) Convenient parking reservation system 2) Real-time spot availability 3) Automated gate entry using QR codes 4) Additional services 5) payment options	1) Customer support 2) Regular updates for booking services	1) Drivers who require parking spaces 2) Car owners that are interested in additional services
Key Resources	Key Activities	Value Propositions	Customer Relationships	Customer Segments
1) Web development team 2) IoT technology 3) Partnerships with Services providers 4) Payment gateway integration	1) Develop the website 2) Develop IoT infrastructure 3) Integrate payment gateways 4) Manage customer feedback	1) Convenient parking reservation system 2) Real-time spot availability 3) Automated gate entry using QR codes 4) Additional services 5) payment options	1) Website to access the service 2) Online marketing	1) Drivers who require parking spaces 2) Car owners that are interested in additional services
Cost Structure	Key Activities	Value Propositions	Customer Relationships	Customer Segments
1) Web development costs 2) IoT infrastructure and technology expenses 3) Marketing expenses 4) Payment gateway transaction fees	1) Develop the website 2) Develop IoT infrastructure 3) Integrate payment gateways 4) Manage customer feedback	1) Convenient parking reservation system 2) Real-time spot availability 3) Automated gate entry using QR codes 4) Additional services 5) payment options	1) Website to access the service 2) Online marketing	1) Drivers who require parking spaces 2) Car owners that are interested in additional services
Revenue Streams	Key Activities	Value Propositions	Customer Relationships	Customer Segments
1) Revenue from parking fees 2) Commission from additional services (car washes, oil changes, etc.)	1) Develop the website 2) Develop IoT infrastructure 3) Integrate payment gateways 4) Manage customer feedback	1) Convenient parking reservation system 2) Real-time spot availability 3) Automated gate entry using QR codes 4) Additional services 5) payment options	1) Website to access the service 2) Online marketing	1) Drivers who require parking spaces 2) Car owners that are interested in additional services

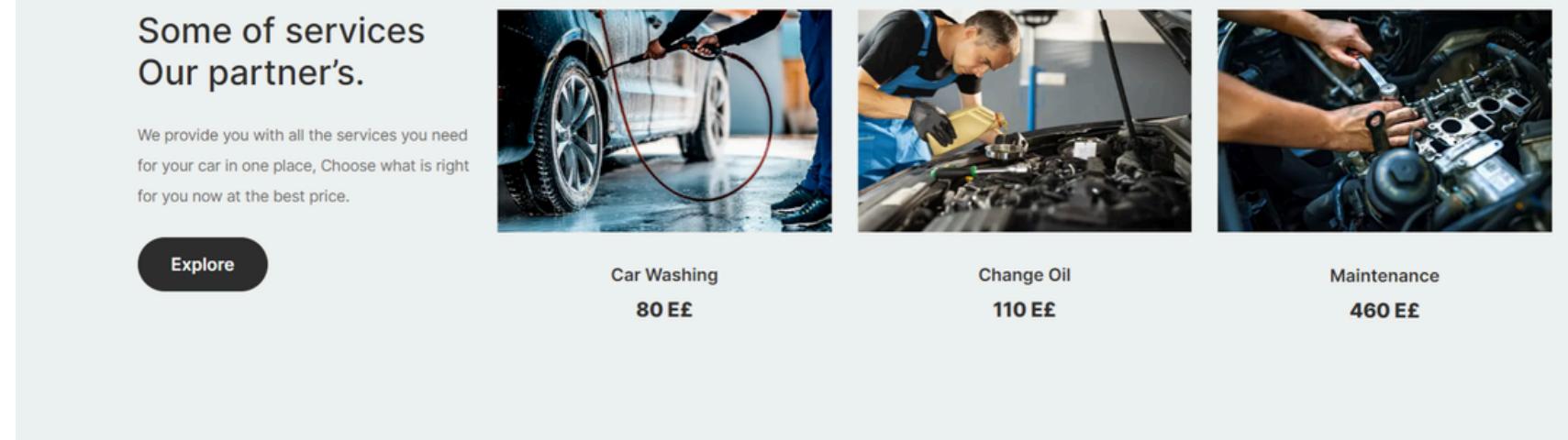
TOOLS & TECHNOLOGIES



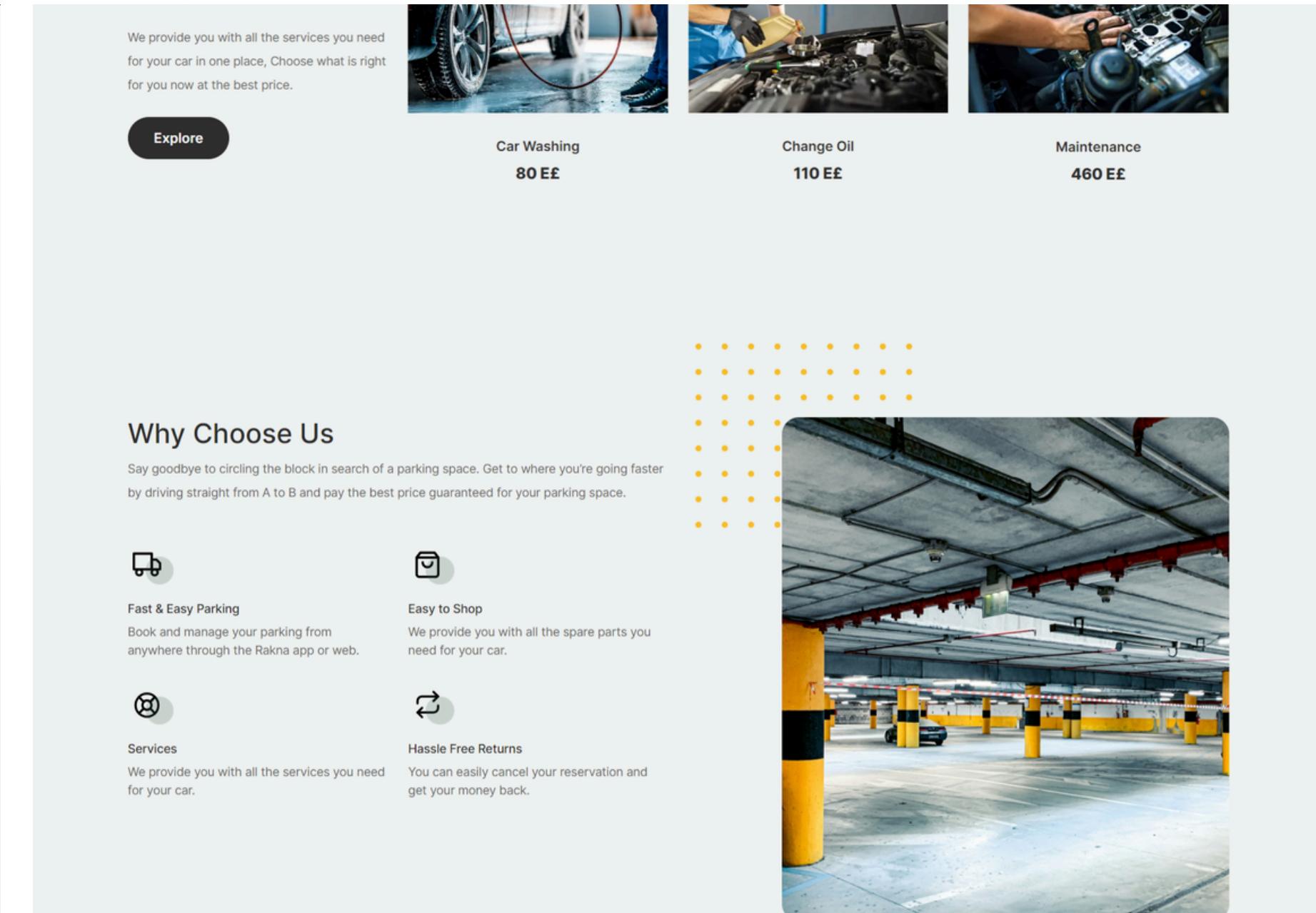
UI SCREENS



The screenshot shows the Rakna home page. At the top left is the Rakna logo with a car icon. The top navigation bar includes links for Home (which is highlighted in yellow), Parking, About us, Services, Reviews, Contact us, a user icon, and a shopping cart icon. Below the navigation is a large yellow Chevrolet Camaro. To the left of the car, the word "Home" is displayed in a large font. Below "Home" is a promotional message: "PARKING JUST GOT A LOT Simpler Book the Best Spaces & Save Up to 50%." Below this are two buttons: "Book Now" (yellow) and "Explore" (white). On the right side of the main image, there is a call-to-action section with a dark button labeled "Explore".



This screenshot shows the services section of the Rakna app. It features three service cards: "Car Washing" (80 E£), "Change Oil" (110 E£), and "Maintenance" (460 E£). Each card includes a small image of the service being performed (car wash, oil change, engine work) and an "Explore" button. Below these cards is a paragraph of text: "We provide you with all the services you need for your car in one place, Choose what is right for you now at the best price."



The screenshot displays the "Why Choose Us" and "Services" sections. The "Why Choose Us" section contains four items: "Fast & Easy Parking" (represented by a car icon), "Easy to Shop" (represented by a shopping bag icon), "Services" (represented by a gear icon), and "Hassle Free Returns" (represented by a circular arrow icon). Each item has a brief description and a small image. To the right of these sections is a large image of a modern parking garage. A decorative pattern of yellow dots is positioned between the "Why Choose Us" section and the parking garage image.

LANDING PAGE

UI SCREENS



Home Parking About us Services Reviews Contact us  

Login.

Log into your Rakna account.

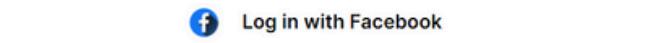


Email

Password

 Log In [Don't have an account?](#)

 Log in with Google

 Log in with Facebook

LOG IN SCREEN



Home Parking About us Services Reviews Contact us  

Register.

join over 100K drivers to our parking.



Name

Email

Password

Confirm Password

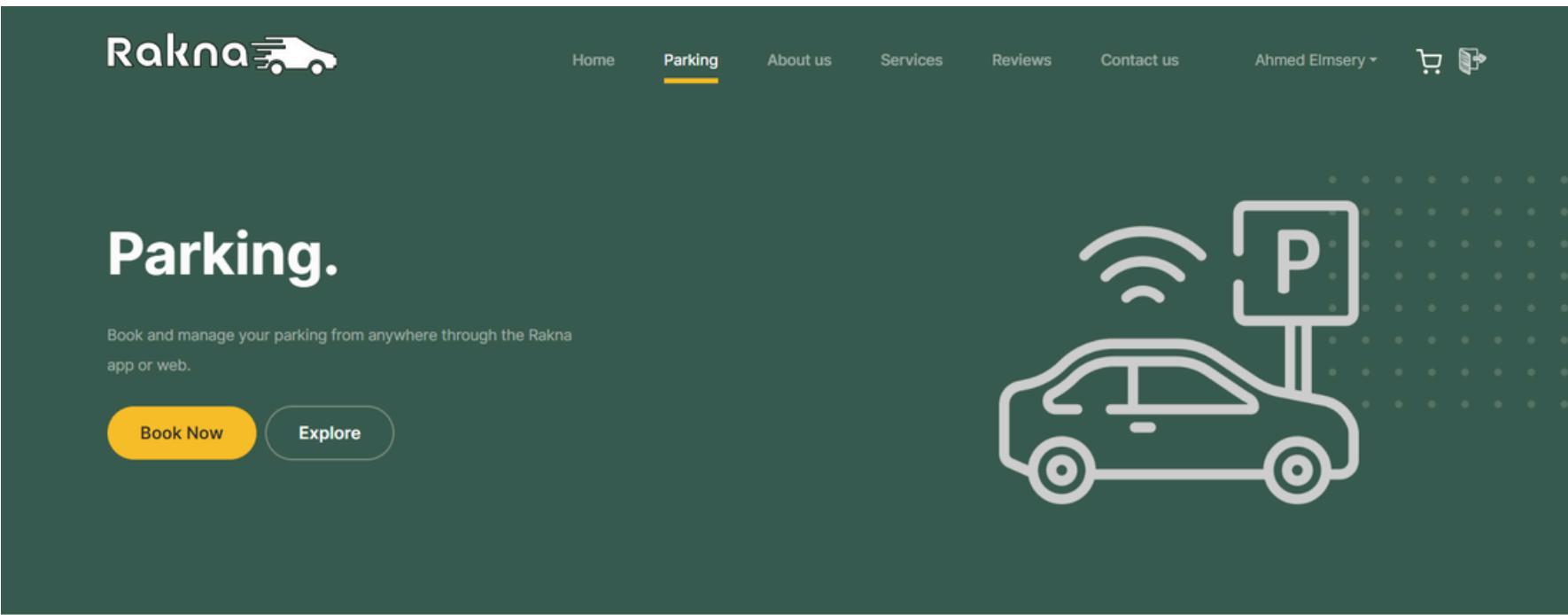
 Register [Already have an account?](#)

 Log in with Google

 Log in with Facebook

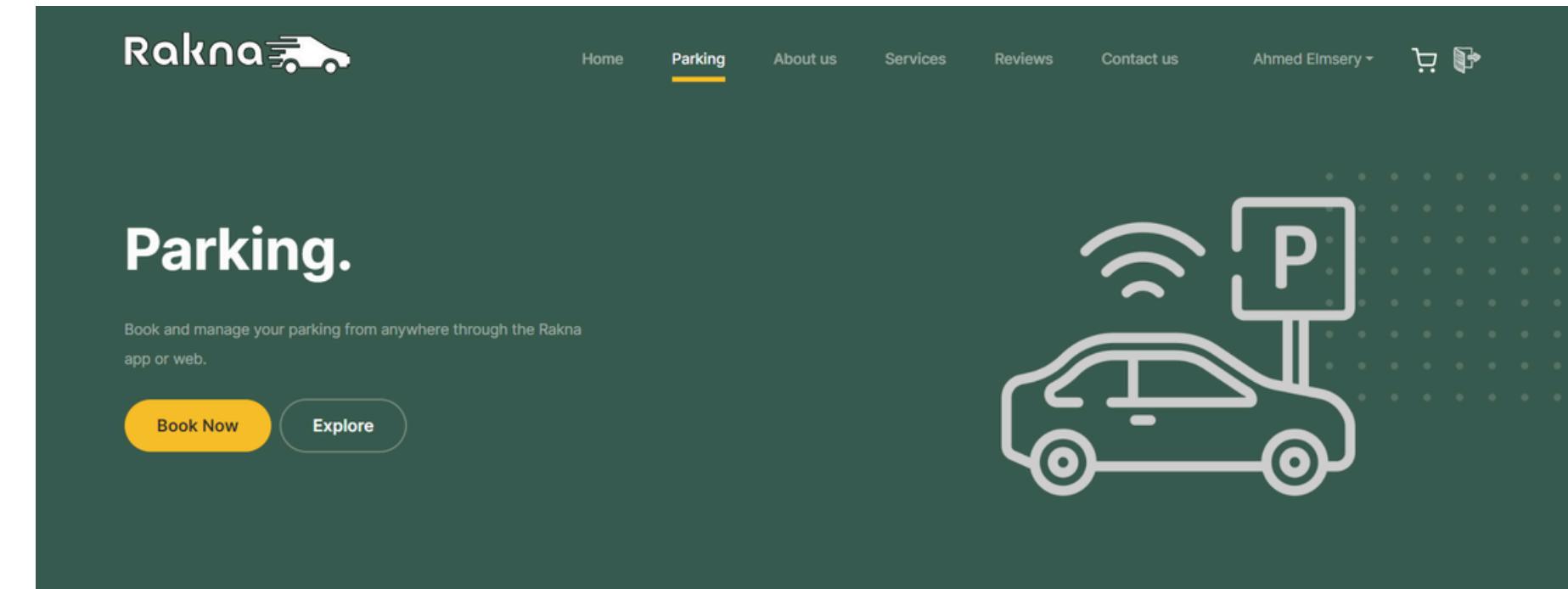
SIGN UP SCREEN

UI SCREENS



The Parking screen features a dark green header with the Rakna logo and navigation links: Home, **Parking**, About us, Services, Reviews, Contact us, Ahmed Elmsery, and a shopping cart icon. Below the header is a large white section with the heading "Parking." and a subtext: "Book and manage your parking from anywhere through the Rakna app or web." It includes two buttons: "Book Now" (yellow) and "Explore" (white). To the right is a graphic of a car connected to a parking sign via a Wi-Fi signal. The bottom half of the screen has a light gray background with the text "PARKING JUST GOT A LOT SIMPLER" and a "Book a parking in just a few easy clicks Save up to 50% off standard rates". It also shows a woman using a smartphone and a red car in a parking lot.

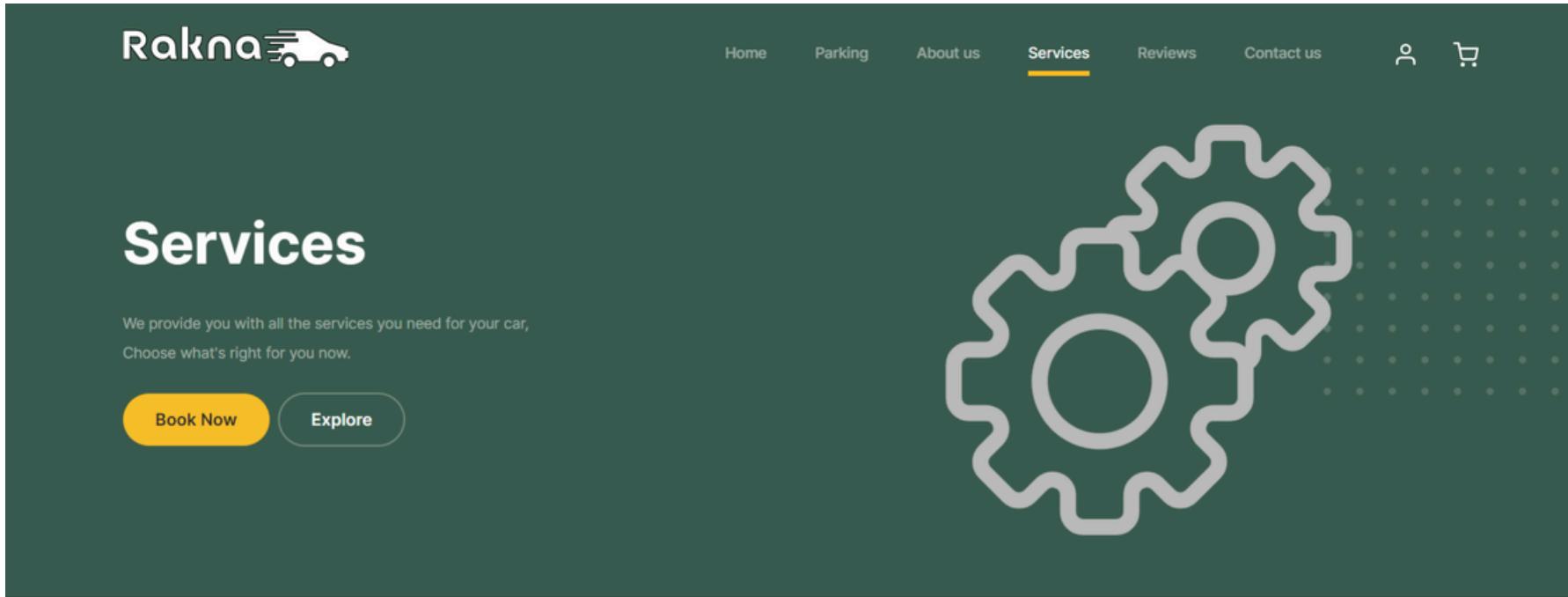
PAERKING SCREEN



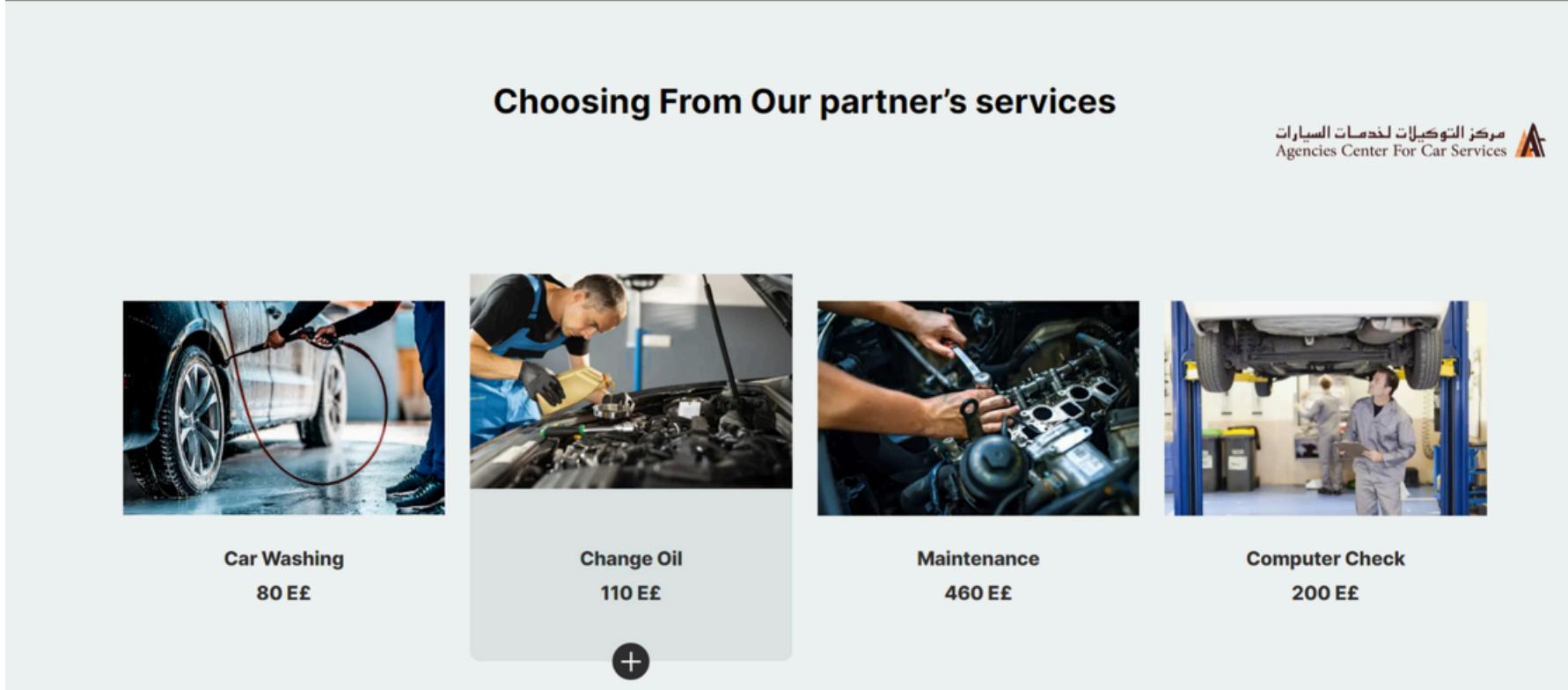
The Available Spots screen follows a similar dark green header layout. The main content area features the "Parking." heading and subtext. Below this is a "Choose Parking Section" section with three options: "Partition 1" (white car), "Partition 2" (black car), and "Partition 3" (blue sports car). Each partition has a 5-star rating and "90 EGP" price. At the bottom of each section is a "Book Now" button. The background of this section is white.

AVAILABLE SPOTS SCREEN

UI SCREENS



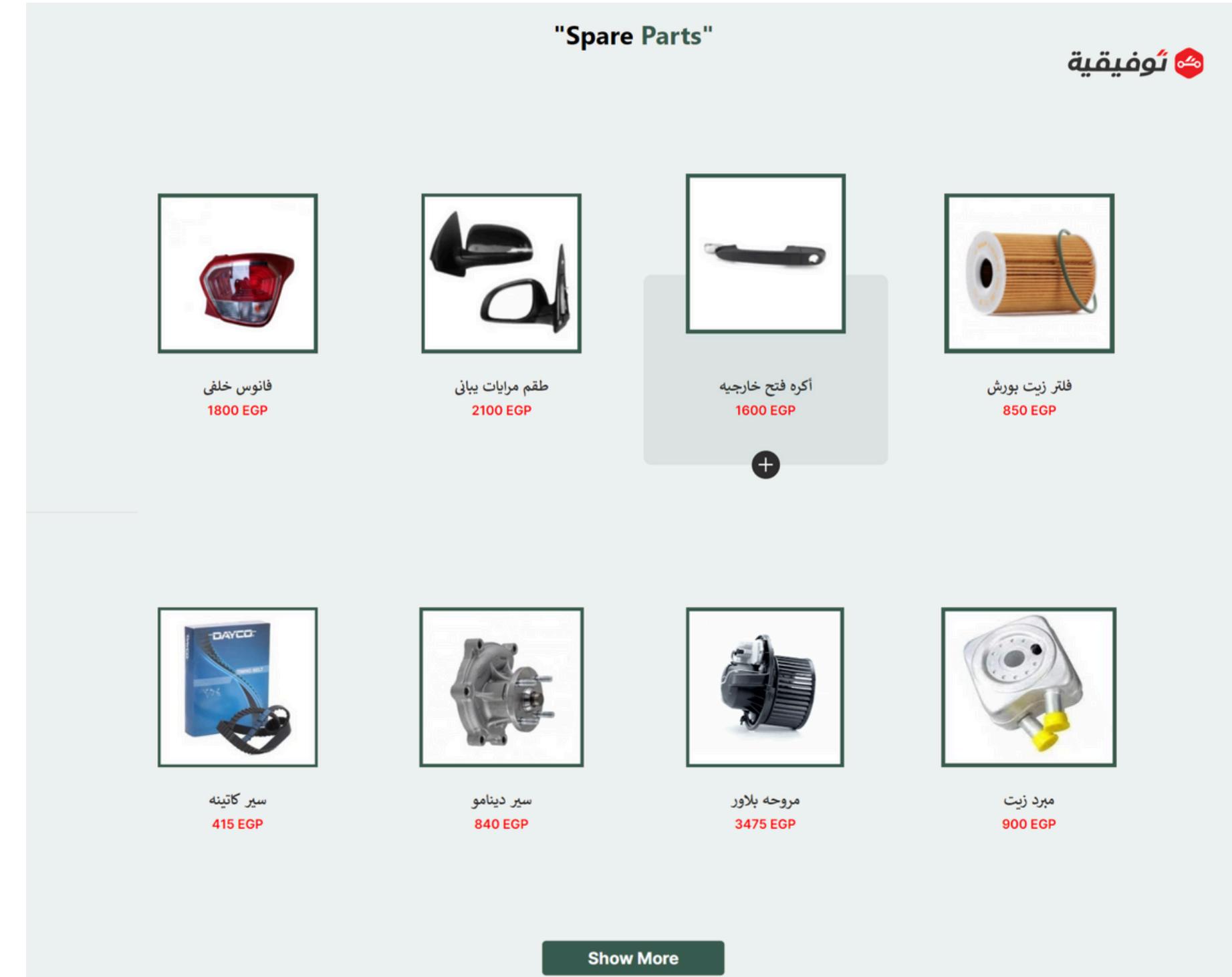
The Services screen for Rakna. It features a large blue gear icon on the right. On the left, there's a section titled "Services" with a sub-section about car services and two buttons: "Book Now" and "Explore". The top navigation bar includes links for Home, Parking, About us, Services (which is highlighted), Reviews, Contact us, a user icon, and a shopping cart icon.



This section shows four service options from partners:

- Car Washing: An image of a car being washed, labeled "Car Washing" and "80 E£".
- Change Oil: An image of a mechanic working under a hood, labeled "Change Oil" and "110 E£".
- Maintenance: An image of a mechanic working on a car's engine, labeled "Maintenance" and "460 E£".
- Computer Check: An image of a mechanic working under a car, labeled "Computer Check" and "200 E£".

A "Show More" button with a plus sign is located at the bottom right.



The Spare Parts screen for توقيقية (Tawqiqia). It has a header "Spare Parts" and a logo. It displays four items:

- فانوس خلفي (Tail Light) - 1800 EGP
- طقم مرايات ببابي (Side Mirror Set) - 2100 EGP
- أكره فتح خارجي (External Lock) - 1600 EGP
- فلتر زيت بورش (Borg Filter) - 850 EGP

A "Show More" button with a plus sign is located at the bottom right.

SERVICES SCREEN

UI SCREENS

Rakna 

Home Parking About us Services Reviews Contact us Ahmed Elmsery  

Cart.

[Book Now](#) [Explore](#)



Image	Product	Price	Quantity	Total	Remove
	Partition 6	90	1	90 E£	X
	Change Oil	110	1	110 E£	X
	Car Washing	80	1	80 E£	X

[Update Cart](#) [Continue Shopping](#)

CART TOTALS

CART SCREEN

UI SCREENS

VISA Wallet

Card Number
1111-2222-3333-4444

Name on Card
Ahmed Elmsery

Exp Month
01

Exp Year
2023

CVV
352

City
Cairo

Zip
10001

Complete Payment

VISA Wallet

Vodafone Cash

Mobile Number
Enter Your Mobile Number send

الرقم السرى للمحظوظ-
PIN

الرقم السرى المتغير-
OTP

Complete Payment

PAYMENT WITH VISA

PAYMENT WITH WALLET

UI SCREENS

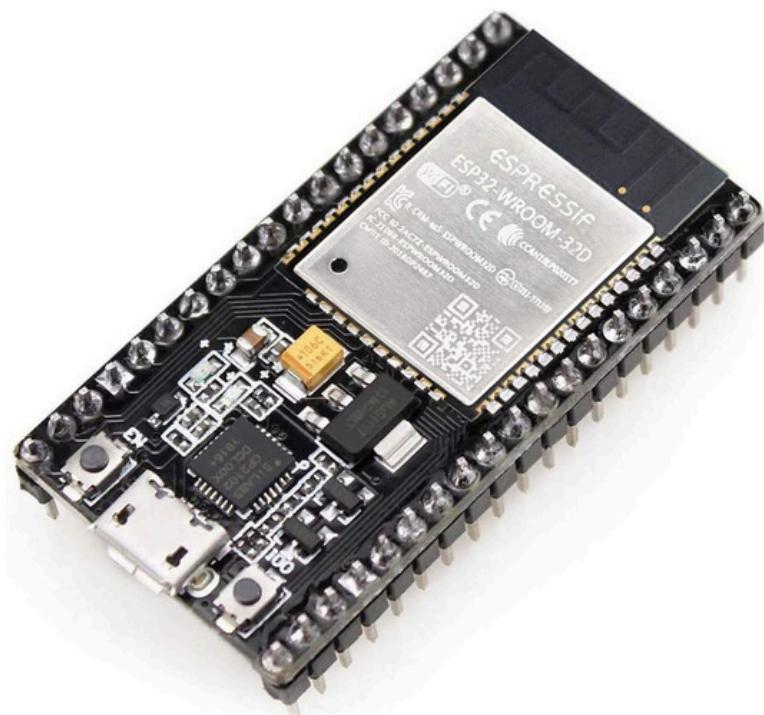
The screenshot shows the 'User Ticket Summary' page for active parking. At the top, there's a navigation bar with the 'Rakna' logo, a search bar, and links for Home, Parking, About us, Services, Reviews, Contact us, and a user profile for Ahmed Elmsery. Below the navigation is a large green header with the title 'User Ticket Summary.' and a 'TICKET' icon. Two buttons, 'Book Now' and 'Explore', are visible. The main content area displays a summary for an active parking session: Name: Ahmed Elmsery, Email: ahmedelmsery131@gmail.com, Arriving Time: Today At 7:00 Pm, Leaving Time: Today At 10:00 Pm, Duration: 3 Hours. A QR code is provided for renewal. Buttons for 'Cancel' and 'Renewal' are at the bottom.

ACTIVE TICKET

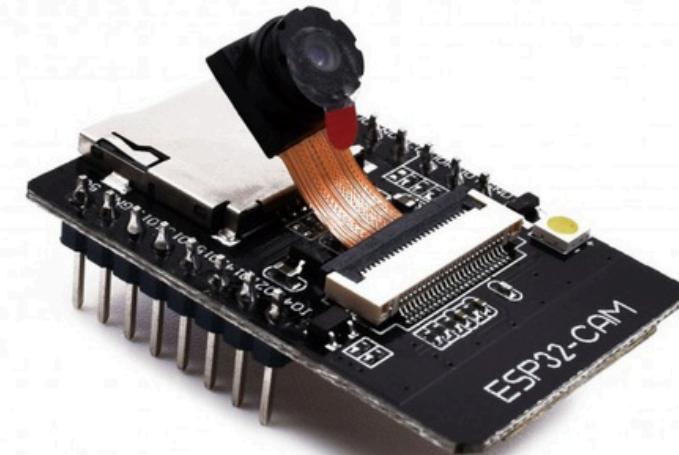
This screenshot shows the 'User Ticket Summary' page for past parking. The layout is identical to the active parking screen, featuring the same navigation bar, green header, and ticket icon. The summary information is identical: Name: Ahmed Elmsery, Email: ahmedelmsery131@gmail.com, Arriving Time: Today At 7:00 Pm, Leaving Time: Today At 10:00 Pm, Duration: 3 Hours. A QR code is present for renewal, and 'Cancel' and 'Renewal' buttons are at the bottom.

PAST TICKETS

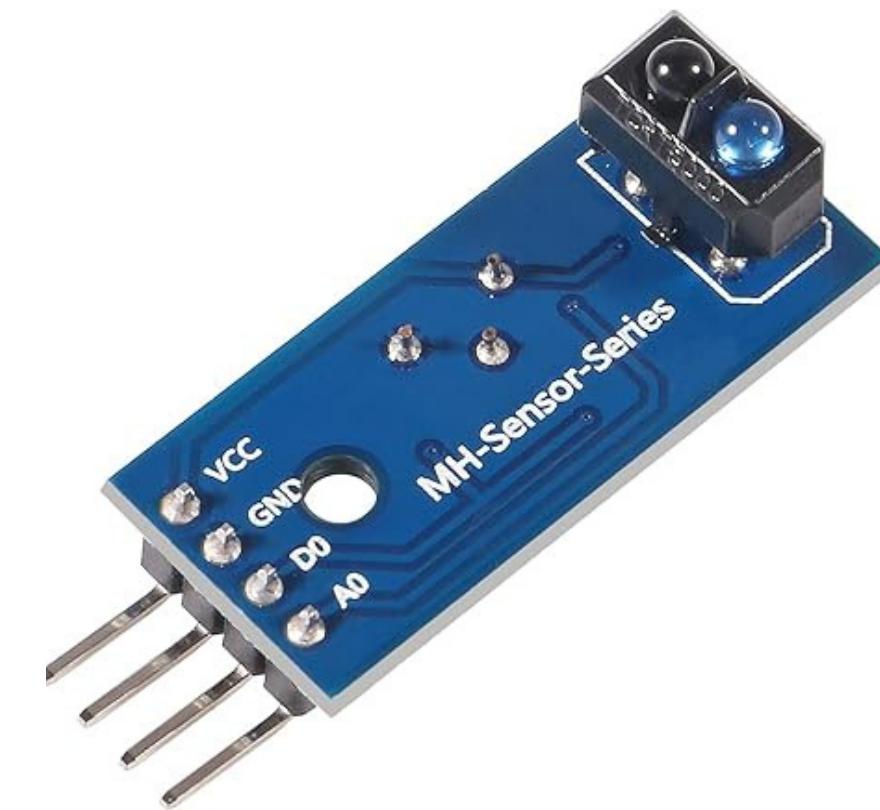
IOT DEVICES



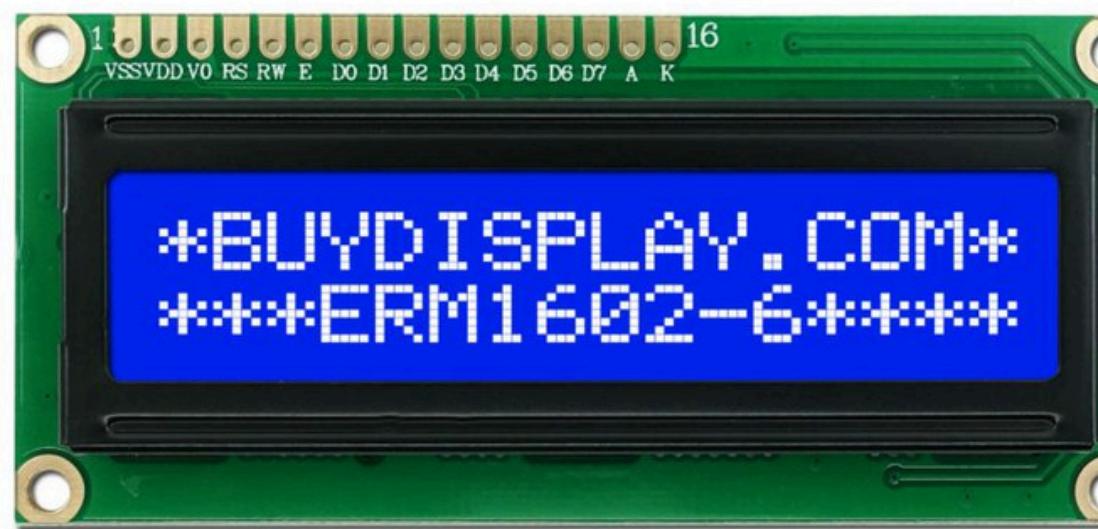
ESP32



ESP32-CAM



IR SENSOR

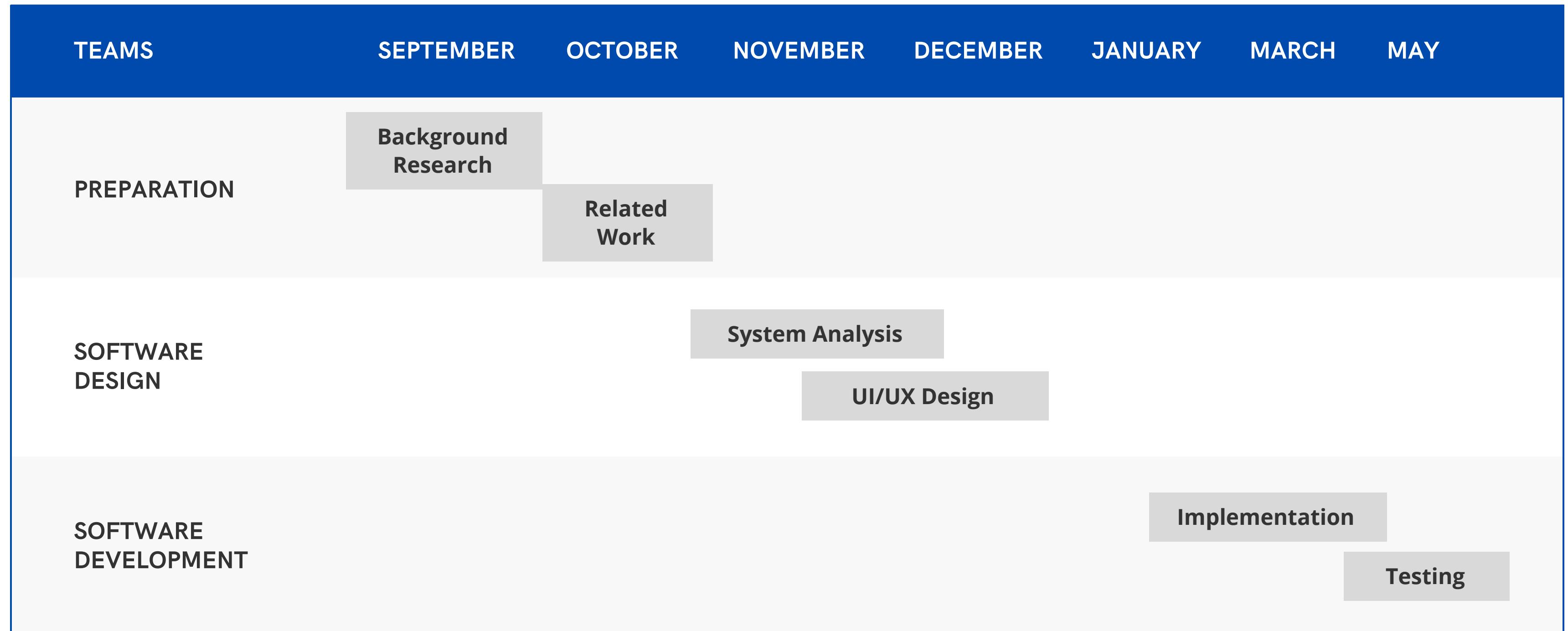


LCD



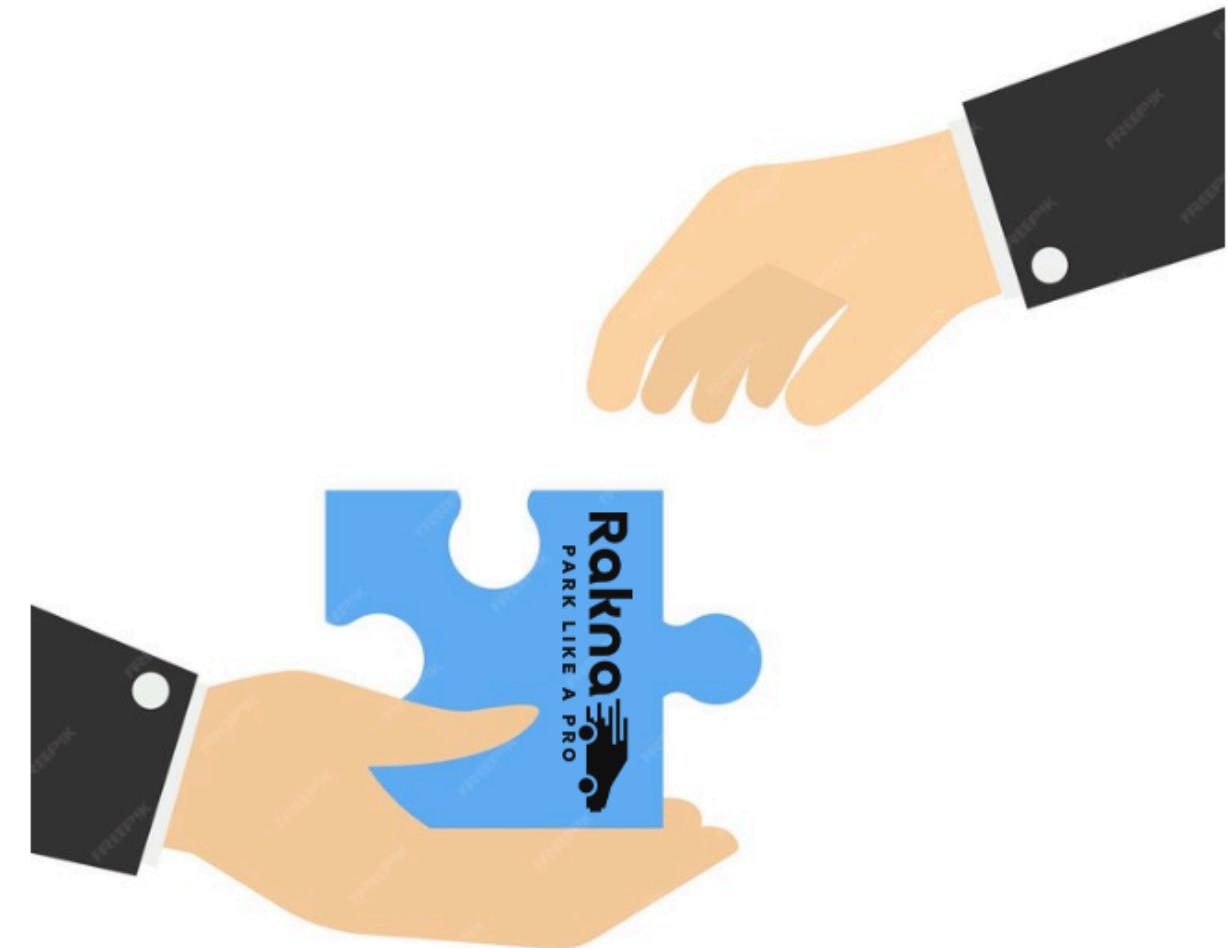
SERVO MOTOR

TIME PLAN



CONCLUSION

In summary, we're creating the Rakna Website & Hybrid application with IoT integration to solve all parking problems. This will make the entire process digital for your convenience, making parking easier and more comfortable.



OUR TEAM



Abdelrahman Mohamed
Flutter, Analysis



Ahmed Samir
Backend



Rawan Ashraf
IOT



Ahmed Ramadan
UI/UX



Aisha Mohamed
IOT



Mohamed Makram
Backend



Eman Ahmed
IOT



Yasmin Gomaa
Frontend



Omnia Magdy
IOT



Moamen Hussein
Frontend

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THANK YOU