

An online rent-A-Car management system

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This Report Presented in Partial Fulfillment of the Requirements for the
Degree of Bachelor of Science in Computer Science and Engineering

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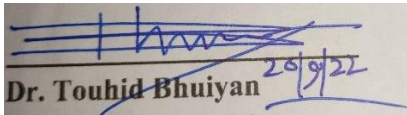
**DAFFODIL INTERNATIONAL UNIVERSITY
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APPROVAL

This Project titled “**An online rent-A-Car management system**”, submitted by *Shazib Bosu* and *Pial Mahmud* to the Department of Computer Science and Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on

13th September 2022

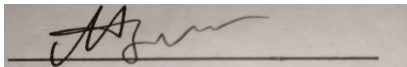
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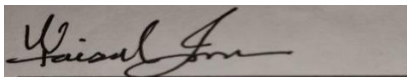
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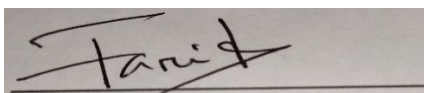
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DECLARATION

We hereby declare that this project has been done by us under the supervision of **Dr.Md.Ismail Jabiullah, Professor, Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for the award of any degree or diploma.

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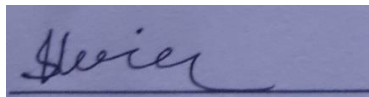
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ABSTRACT

Bangladesh is not only a small but also an over-populated country in the world. For this huge amount of people, there is also a huge amount of vehicles in this country. But as we all know that Bangladesh is a developing country, as per the development of both economic and social status more people will be interested in private transportation. Considering this aspect we are developing an online platform where we can meet the demand of the people for private transportation at a low cost and in the easiest way. Every kind of service is available now online. That's why this online rent-a-car system will be easy to adopt. Though there are other online car renting services already available in Bangladesh. But they are costly and mainly focused on a one-way trip. But our system will give you the freedom to choose whether it will be a one-way trip or not & to save your money. The outcome of this platform will benefit drivers, passengers, and the environment. Simply, saying this project is all about a developed ride-sharing system where there will also be a car reserving system for future or instant use, you can reserve your ride and also choose the type of reserved car.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Customers will be able to reserve their cars thanks to the car rental system. Customers fill out their personal information to submit information to this application. A customer can reserve a car after setting up an account on the website. The suggested system is a fully integrated online system. It streamlines and streamlines manual processes. Customers are helped by this automated process, which enables them to fill in the details as needed. It includes details on the location and the kind of car they want to rent. This system seeks to develop a website where users can reserve cars and make service requests either immediately upon need or in the future. In our country, there are currently three to four ride-sharing apps. for instance, Uber, Pathao, Obhai, etc. These three ride-sharing businesses in particular are extremely well-liked by the general public. Since they offer food and package delivery services in addition to ride-sharing services. Why then do we require yet another ride-sharing service? Because it provides more than simply transportation; it also offers a Rent-A-Car service. Here, in addition to providing real-time services, we will also offer booking services so that users can schedule rides in the future. Not only can people schedule a ride, but they can also pick the kind of vehicle they want to utilize, such as a premium or vintage model. We are developing a three-step system for auto parts, auto repair, and car rentals. Additionally, a sizable number of branded cars will have registered on our website. so that without having to buy it, our clients can ride in their ideal vehicle. WordPress was used to build this website, along with a variety of plugins that will make it user-friendly. On this website, SEO was employed to speed it up. Everyone will be able to find this website simply because we chose live domain hosting. Our website has six sections that will be used to carry out the entire working procedure.

1.2 Motivation

Information and communication technology is rapidly evolving on a global scale, and its implications on major economies have been considered disruptive to the old traditional economic structures. ICT has had the biggest impact and changed the most in the transportation sector, particularly the urban transportation sector (Taxi services), most referred to as the "demand economy" or the "ride-sharing economy". Such a ride-sharing business strategy is gradually reaching emerging nations, changing the business environment there. Volatility in the population's employability and service users' employment status, and residents. Bangladesh is a developing nation, thus as time passes more individuals will become interested in private transportation or will thrive for an efficient transportation system to save time. Our website will help with that. As far as we are aware, in today's digital Bangladesh, everything is turned on online. We choose this position since there is currently no efficient online solution for renting, maintaining, and selling parts for private cars all in one location. In addition, as time goes on, we'll be moving into the online era, therefore to stay up, we choose to create and develop web applications because there will be a significant market for them in the future.

1.3 Objective

Our main goal is to offer various car types for hire to our customers through this website application based on various occasions and for casual use. We will also provide highly adorned car servicing for branded automobiles as well as for antique cars since we want to be a one-stop shop for cars. Our website will have a variety of brand-name car parts available so that customers may purchase them there as well. For individuals who want to drive their dream cars, we will have branded vehicles available for rent. Additionally, folks who have extra cars can register here to make money from them. We are all currently residing in an era of online services and the internet. Even though ordering any services online is now simple, it is extremely uncommon to see all of a sector's problems solved in a single medium. Therefore, we are working toward the goal of improving the usability of web services for vehicles. Even though we have already taken the first step toward realizing that objective, much work remains.

1.4 Expected Outcomes

In our nation, there are just too many people and vehicles. However, as our nation develops in terms of both its economic and social standing, more people will become interested in private transportation. In light of this, we are creating an internet platform to help us meet public demand for private transportation. at a reasonable price and in the simplest manner. Today, you may get any service online. Because of this, it will be simple to use this online auto rental method. Despite the fact that our country already has other online automobile rental providers. However, they are pricey and designed primarily for one-way travel. However, our system will provide you the option to decide whether or not it will be a one-way trip and to save your money. The platform's final results will benefit motorists, passengers, and the environment.

1.5 Project Management and Finance

We are using live hosting to live our website on the internet.

Live domain hosting process:

1. Buy domain hosting from a good service provider some international and Bangladeshi domain hosting provider as follows

<https://www.namecheap.com/>,<https://www.godaddy.com/en-in>,

<https://www.webhostbd.com/>,

[intelwebhost.com](https://www.intelwebhost.com)

2. log in to C-panel

3. Create a database and user account and connect the database with the user

4. Download WordPress zip from <https://wordpress.org/download/> and unzip it

3. Copy all the WordPress folder and files and paste it into the folder that one created in the file manager folder of the c-panel

4. Then set up WordPress using the database and user name.

We bought a domain from a website named NAMECHEAP. It cost us 1500 BDT to buy the domain hosting. It has a 1-year expiring time. After 1 year we will have to renew it to keep our website live.

1.6 Report Layout

Report layout is basically the summarization of a project report format.

In Chapter 1, we introduce our project. Wrote about our motivations, about our wants and goals etc. it is basically the introductory part of a report.

In Chapter 2, we discuss the background, relative work, comparative studies and challenges we face during building this project.

In Chapter 3, we wrote about the requirement specification of this project. Here we showed some models and diagrams.

In Chapter 4, we gave information about the design of our website.

In Chapter 5, we shared the implementations and testing information.

In Chapter 6, we discuss the Impact on Society, the Environment, and the Sustainability of our website.

Last, Chapter 7 is all about the discussion and conclusion of our website.

CHAPTER 2

BACKGROUND

2.1 Preliminaries/Terminologies

Online ride-sharing is a popular car renting system in foreign countries. They make every effort to improve the quality of car rides in those countries. A person who doesn't own a car and also doesn't want to use public transport through this system can easily hire a car for their use and just pay for the service he/she got.

By creating this system, we want to add a new flexible online car renting system in Bangladesh. People can get a smooth one-stop solution for car renting & car servicing through this application. This online system is designed in such a way that people can easily use it. This is a web-based application. For this, one doesn't need any personal phone to use the application. One doesn't require any fees for using this application. This application is beneficial for passengers and car drivers.

2.2 Existing Systems

The Ridesharing concept isn't new to our country. But there are some pros & cons in these systems. Let's know about those existing systems:

1. **UBER [1]**
2. **PATHAO [2]**
3. **OBHAI [3]**

UBER

Uber is a provider of mobility services in America. Uber provides a wide variety of ride alternatives. The most well-known and consistent offering from the company is UberX.

The company also provides Uber XL, Uber Comfort, and Uber Black. Uber XLs often have SUV-style sides and have enough for up to 6 passengers. Uber Black is Uber's premium offering.

Garrett Camp, a programmer and co-founder of StumbleUpon, and Travis Kalanick, who had previously sold his Red Swoosh firm for \$19 million in 2007, established Uber as Ubercab in 2009.

Camp sought to discover a way to lower the price of direct transportation after he and his buddies spent \$800 hiring a private driver. His idea evolved into Uber when he recognized that splitting the cost with others may make it more reasonable.

PATHAO

The on-demand digital platform business Pathao is based in Dhaka, Bangladesh. The business is active in four Bangladeshi cities—Dhaka, Chittagong, Khulna, Sylhet—as well as Kathmandu, Nepal. Pathao offers courier, restaurant delivery, ride-sharing, and online shopping services. The first significant ride-hailing business in Bangladesh to receive an enlisting certificate from the authorities is Pathao. Back in 2015, Pathao began its adventure as a delivery business using a fleet of motorcycles and bicycles. They served as a delivery service for a number of Bangladeshi e-commerce businesses. Midway through 2016, Pathao launched its bike-sharing program. By March 2018, the company had successfully signed up more than 100,000 drivers and around 1 million riders nationwide. Pathao follows a Super App model, providing all of its services through one app.

Pathao offers ride-sharing services on demand using bikes and automobiles. To use Pathao's service, the driver and passenger must both have internet- and GPS-enabled smartphones running Android or iOS. In order to connect the passenger with a driver traveling in that direction nearby, Pathao uses a location-based approach.

They did not anticipate that amount of traffic when they developed their initial systems, and their monolithic platform was not prepared to handle it. To facilitate the deployment of microservices, they made the decision to switch to a microservice architecture and relocate to a Kubernetes cluster on Google Cloud. Their goal was to create a single app that would function in a variety of industries, including groceries, packages, gaming,

health, transportation, and streaming video. For some use situations, that called for a particular form of a database.

OBHAI

In Bangladesh, there is a ride-sharing service called OBHAI, a project of the MGH Group. The service is run using a smartphone app, and users can choose between a CNG vehicle, a car, a microbus, or a motorcycle to get where they need to go. It was first only launched with the CNG service before eventually adding other services. With the intention of providing dependable and practical transportation throughout Bangladesh, OBHAI entered the market. The Obhai creator claims that a passenger can choose one of the four services via the app by defining the destination. Their tagline is "no more waiting - ride in minutes."

The CNG auto-rickshaws and minibuses have now been added to the ride-sharing services for the first time.

2.3 Comparative Studies

If we compare, there are very few online-based ride-sharing applications in Bangladesh. All of them are mobile applications. Most applications are providing the same feature-like an option you have to reserve a vehicle for going somewhere. Someone can hardly find any application which provides both reserve and sharing ride features. Hardly anyone can find such an application that will provide you with the ride as well as car servicing. Most of the application has data leak mark on them. On the other hand, they don't have many user-friendly features.

Ours is a complete ride-sharing application that works as a web-based online rent-a-car & servicing platform. From children to adults, anyone can use it very easily. This application will provide the most facilities to all users.

2.4 Challenges

There were a lot of challenges we faced while implementing the project. The challenges are mentioned below:

- i. The First challenge was to think about the idea and accuracy that what are actually going to implement as a rent-a-car web application.
- ii. Then, we had to think about a name that can relate to our work and at the same time easy to search.
- iii. Soon after, we began to develop the tools and functionality we would utilize in this program. In order to complete this work and make it user-friendly, we had to consider a wide range of original concepts and features.
- iv. The next step was deciding the programming language and libraries to utilize. Another difficult task was selecting the ideal language.
- v. We had to select a theme that is appropriate for all users because our website serves as a platform for both drivers and passengers. It was a serious challenge.

CHAPTER 3

REQUIREMENT SPECIFICATION

3.1 Use Case Modeling and Description

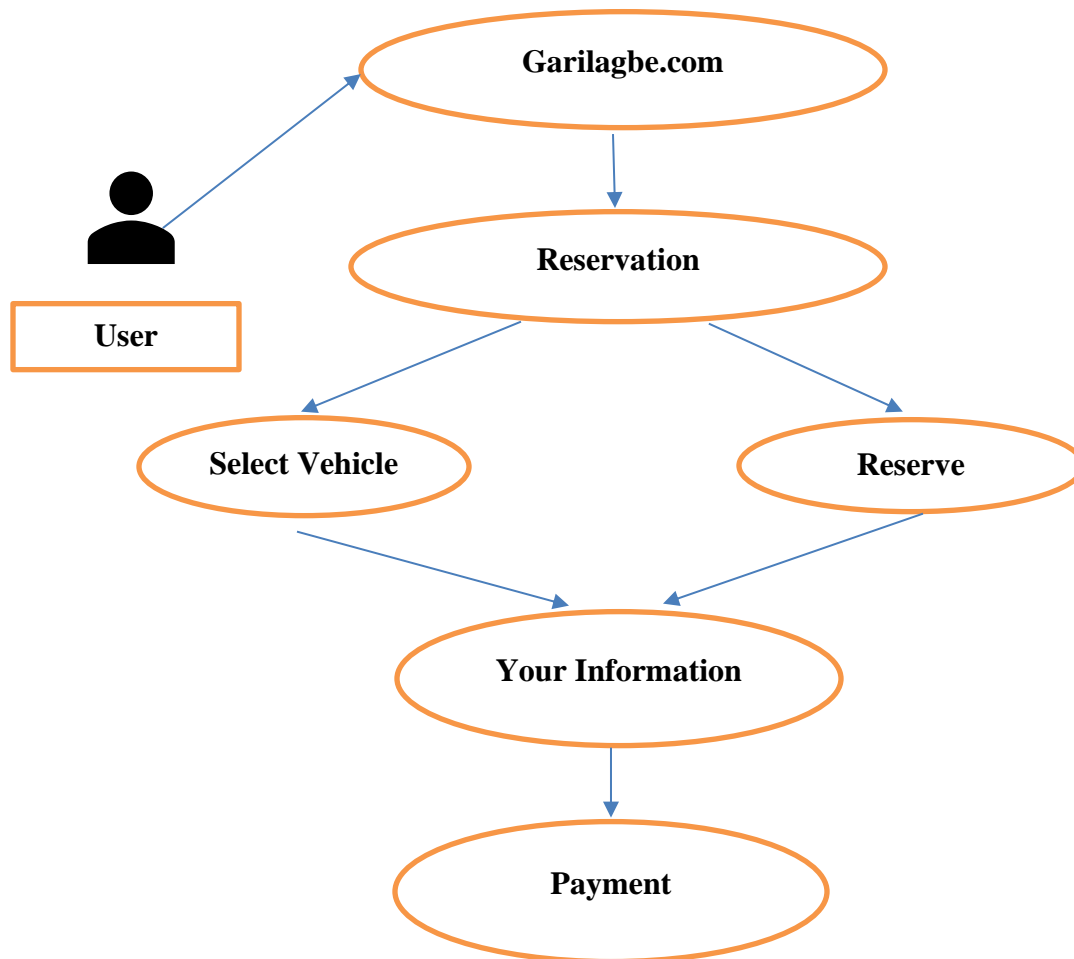


Fig 3.1: Use Case Diagram

All the users can see the home page and menu bars. They can register and log in. After login,

all the users can see their dashboard; can see their profile, change their passwords, and log out. Admin can see passengers' information and their reservation. They can process an order, send mail, add cars, add services, and complete transactions. Super-admin can go through all the features of admin along with settings.

Clients can set time, set location, set pickup point, set drop point, and chat with the help center.

3.2 Design Requirements

Design Requirements are an important part to design a system fluently. The design requirements we needed for our system are:

Efficient: We tried to design our system very light.

User-Friendly: Our system is a user-friendly website. We design it in a way so that our users can access it easily.

3.3 Required Tools

- Apache
- Xampp
- Internet Browser
- MySQL
- WordPress [4]
- Live Hosting

CHAPTER 4

DESIGN SPECIFICATION

4.1 Front-end -design:

In a formal sense, we might say that the front end is the "man or woman issue" of a website. website exploiter can view the front surrender. It mainly concentrated on the early problems and advantages of a website. Our website was styled using xampp /Cpanel, WordPress, WordPress themes and plugins, HTML, and CSS.[5]

Home page:

The home page of a website is generally the first page. Whether or whether they are currently using the website, anyone can access this page. On the homepage, there are many features to choose from. However, unless a user registers, they will not be able to utilize all the functions. Located at the top of the page is a menu bar. Additional features can be found at the very bottom of each page, such as "Contact," which enables users to get in touch with us and view our location. Additionally, our users can view our pick-up section, where they can go directly and locate available vehicles which are shown in Fig 4.1.

Pickup section:

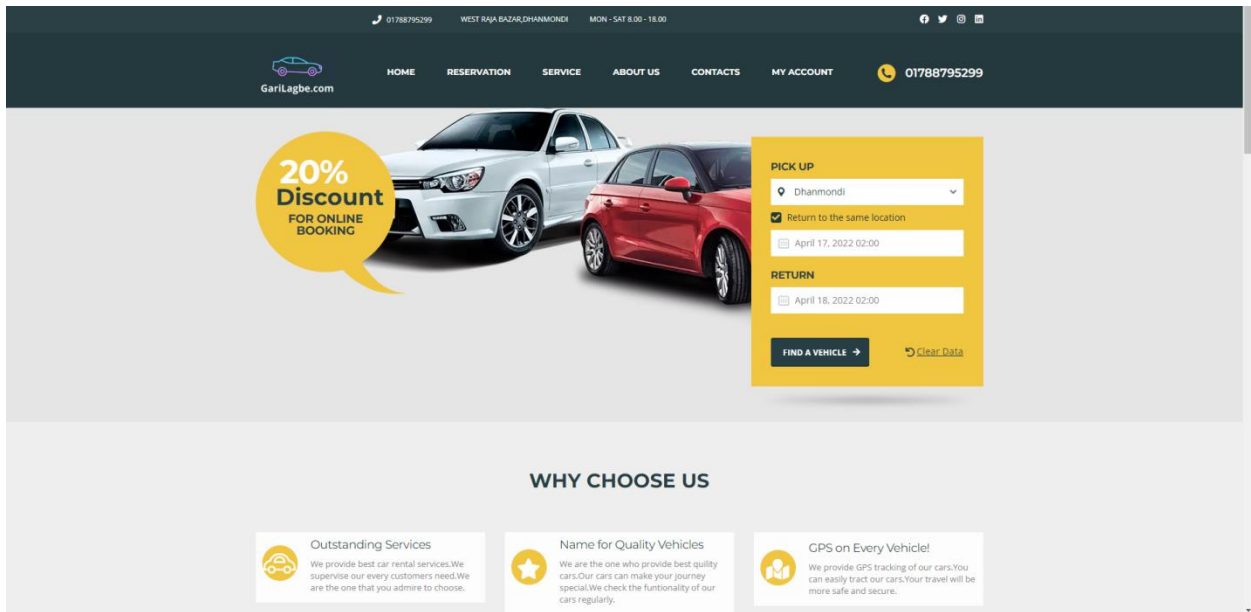


Fig 4.1: Pickup section

Vehicles categories section:

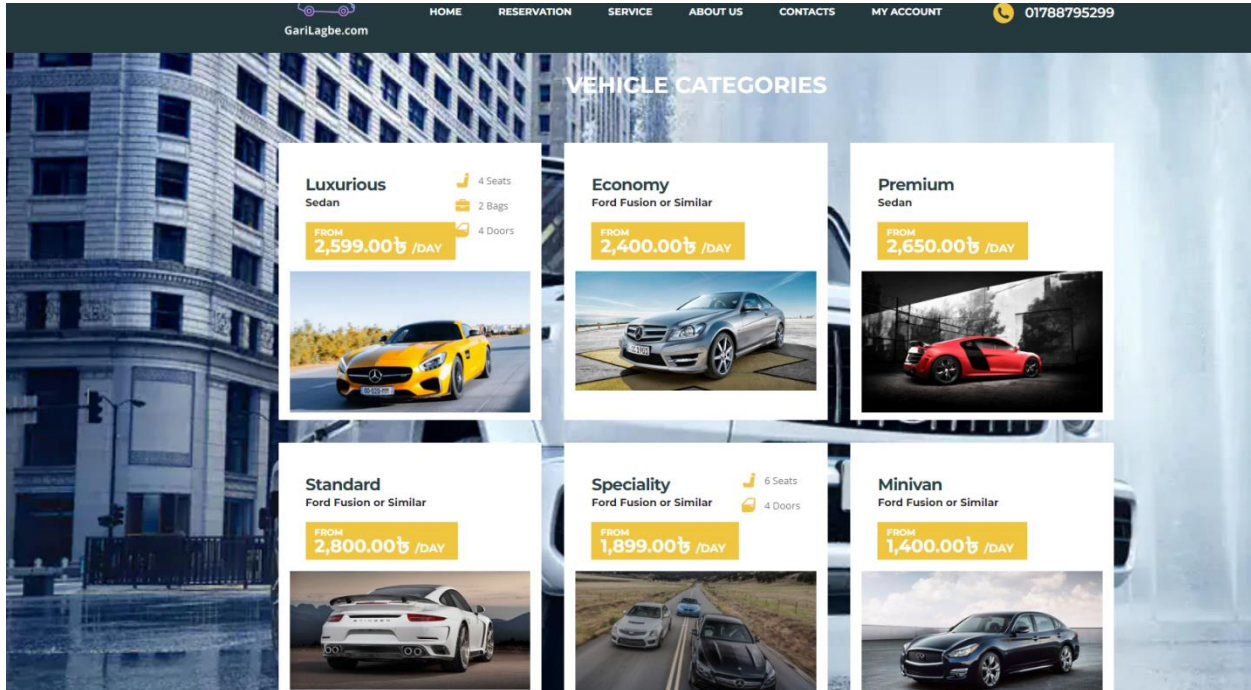


Fig 4.2: Vehicle Category

Footer section:

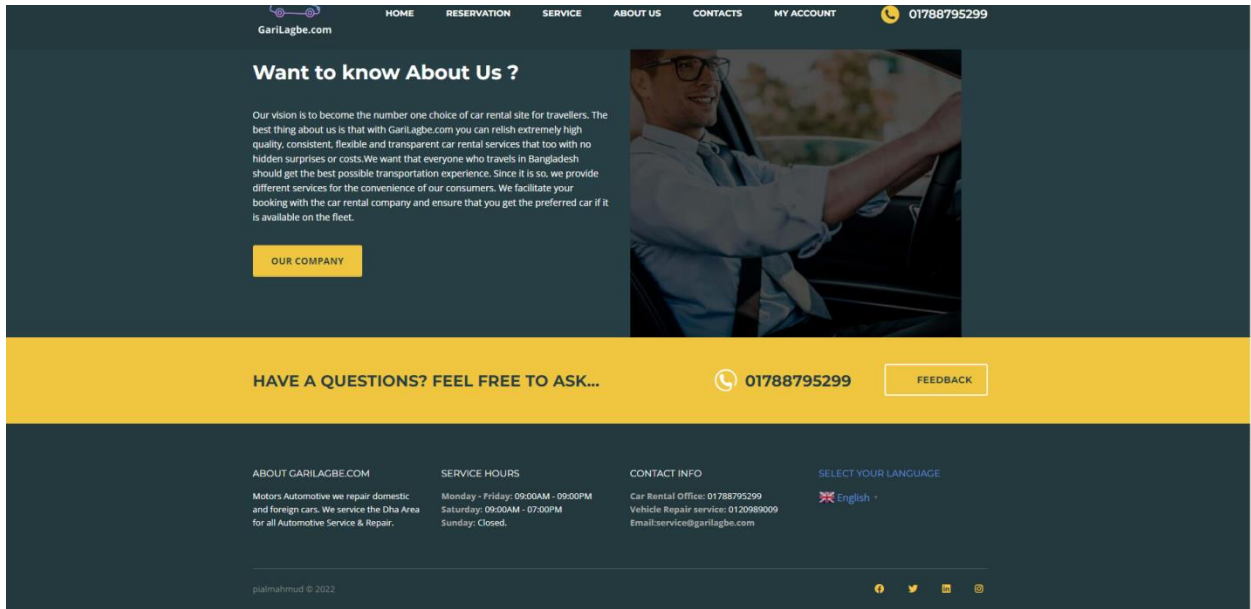


Fig 4.3: Footer

Reservation:

Here our customer sees their pick time and drop off and selected vehicle. And here also see the reserve section on how to conform to a long drive which is shown in Fig 4.4.

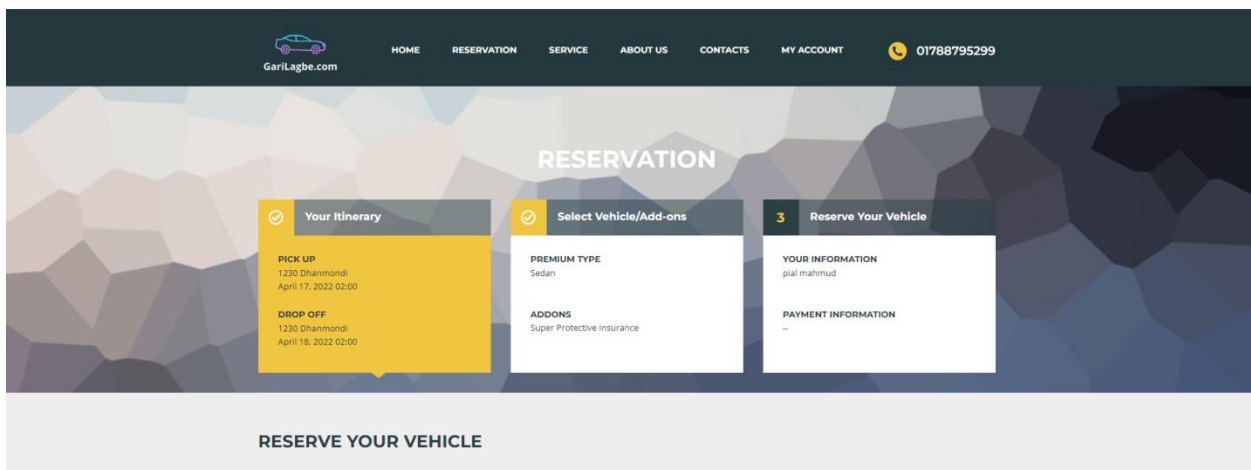


Fig 4.4: Reservation

Here is the pick-up section and our customers to see the last time their pick time and return time and they can also changes to confirm their reservation.

Our customer also sees their billing details which is shown in Fig 4.5.

The screenshot displays the GariLagbe.com website interface. The top navigation bar includes links for HOME, RESERVATION, SERVICE, ABOUT US, CONTACTS, and MY ACCOUNT, along with a phone icon and the number 01788795299. The main content area is divided into two columns.

PICK UP

PLACE TO PICK UP THE CAR*

Dhanmondi

Return to the same location

PICK-UP DATE/TIME*

April 17, 2022 02:00

RETURN

DROP DATE/TIME*

April 18, 2022 02:00

[Continue reservation](#)

[Clear Data](#)

PREMIUM
Sedan

RATE

| QTY | RATE | SUBTOTAL |
|---------------------|-----------|------------------|
| 1 Days | 2,650.00₹ | 2,650.00₹ |
| Rental Charges Rate | | 2,650.00₹ |

ADD-ONS

| QTY | RATE | SUBTOTAL |
|---|-----------|------------------|
| 1 x Super Protective Insurance for 1 day(s) | 2,400.00₹ | 2,400.00₹ |
| Add-ons Charges Rate | | 2,400.00₹ |

Estimated total **5,055.00₹**

Fig 4.5: Billing Details

Footer section

The screenshot displays the GariLagbe.com website interface. At the top, a dark navigation bar contains the logo and menu items: HOME, RESERVATION, SERVICE, ABOUT US, CONTACTS, MY ACCOUNT, and a phone icon with the number 01788795299. The main content area is divided into two columns. The left column features a 'RETURN' section with a 'DROP DATE/TIME*' field set to 'April 18, 2022 02:00'. Below this is a yellow 'Continue reservation' button and a 'Clear Data' link. The right column contains a billing summary table. The first table lists '1 Days' at a rate of 2,650.00₺, with a subtotal of 2,650.00₺. Below it, 'Rental Charges Rate' is also 2,650.00₺. The second table, titled 'ADD-ONS', lists '1 x Super Protective Insurance for 1 day(s)' at a rate of 2,400.00₺, with a subtotal of 2,400.00₺. The 'Add-ons Charges Rate' is also 2,400.00₺. The final row shows an 'Estimated total' of 5,055.00₺. The footer section is dark and contains four columns of text: 'ABOUT GARILAGBE.COM' (Moters Automotive we repair domestic and foreign cars...), 'SERVICE HOURS' (Monday - Friday: 09:00AM - 09:00PM, Saturday: 09:00AM - 07:00PM, Sunday: Closed), 'CONTACT INFO' (Car Rental Office: 01788795299, Vehicle Repair service: 0120989009, Email: service@garilagbe.com), and 'SELECT YOUR LANGUAGE' (English). Social media icons for Facebook, Twitter, LinkedIn, and Instagram are at the bottom right, along with the copyright notice 'pialmahmud © 2022'.

Fig 4.6: Billing Section Footer

Services:

Our services include

- General Automotive Repair
- Preventative Car Maintenance
- Air Conditioning and Heater Service
- Cooling System and Radiator Repair
- Synthetic Motor Oil Replacement
 - Oil Filter Replacement
 - Brake Repair
 - Engine Diagnostic
 - Belts, Hoses, Fluids
 - Transmission Services

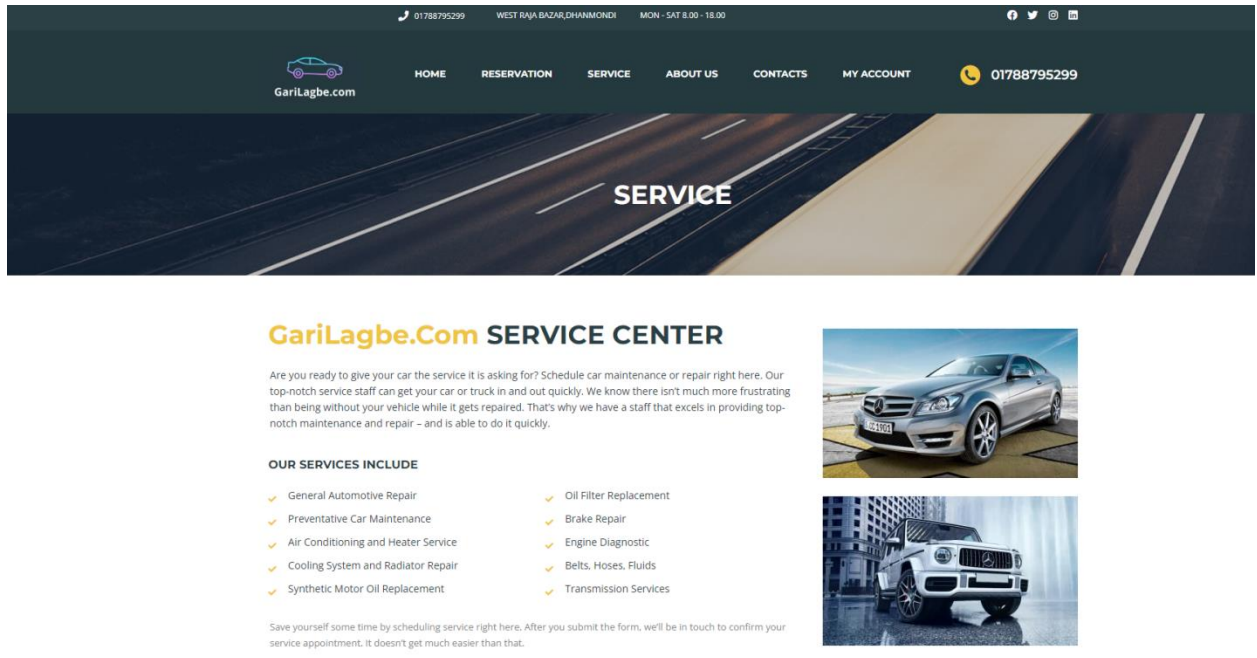


Fig 4.7: Services

About us:

Our goal is to top the list of websites used by tourists to rent cars. The nicest thing about us is that there are no hidden fees or charges, and our automobile rental services are of the highest quality, consistency, flexibility, and openness. Every traveler in Bangladesh should have the finest possible transportation experience, which is what we want to achieve. As a result, we offer a variety of services for the convenience of our clients. We help you make your reservation with the rental vehicle company and make sure you get the automobile of your choice if it is in the fleet.

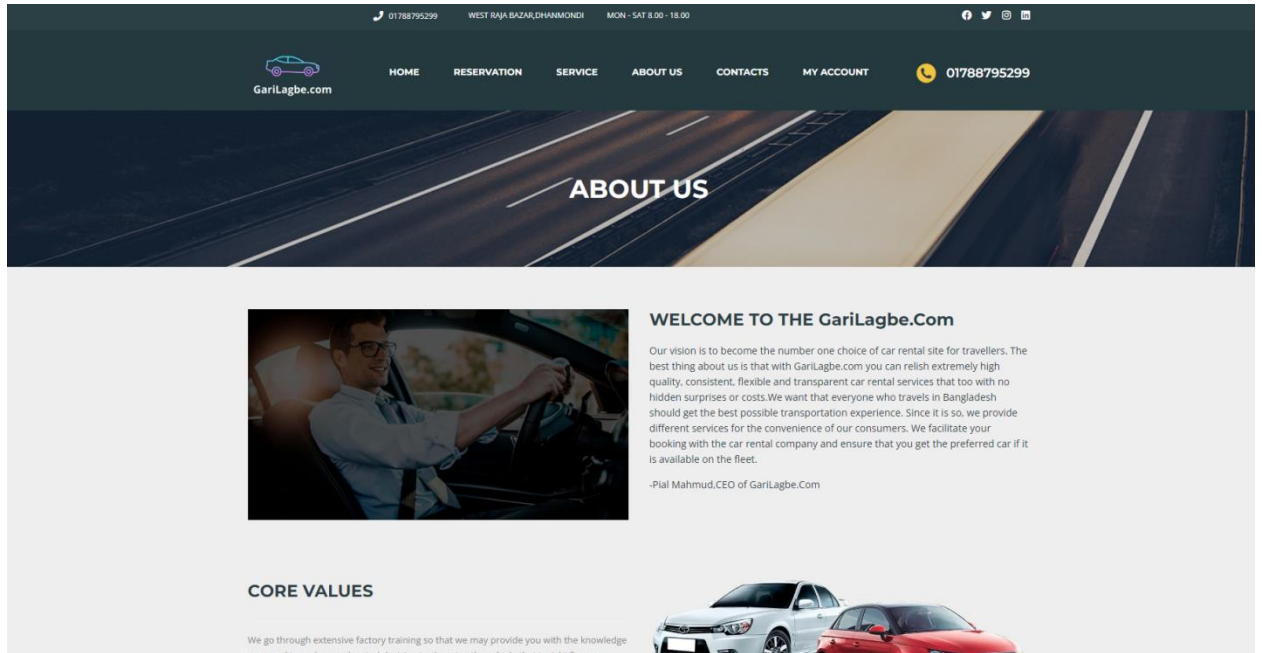


Fig 4.8: About Us

Contact Us:

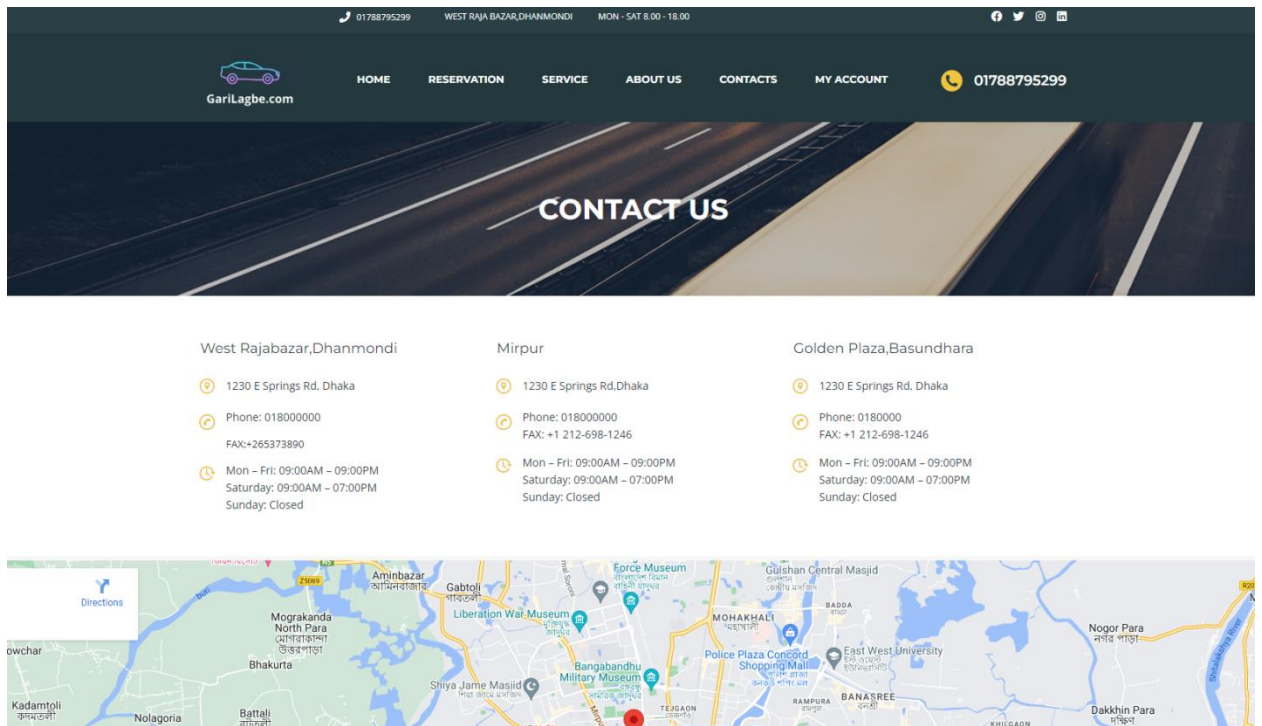


Fig 4.9:Contact Us [12]

My account:

Here is the admin account section. admin can see his order, dashboard, details, address, and other important sections.

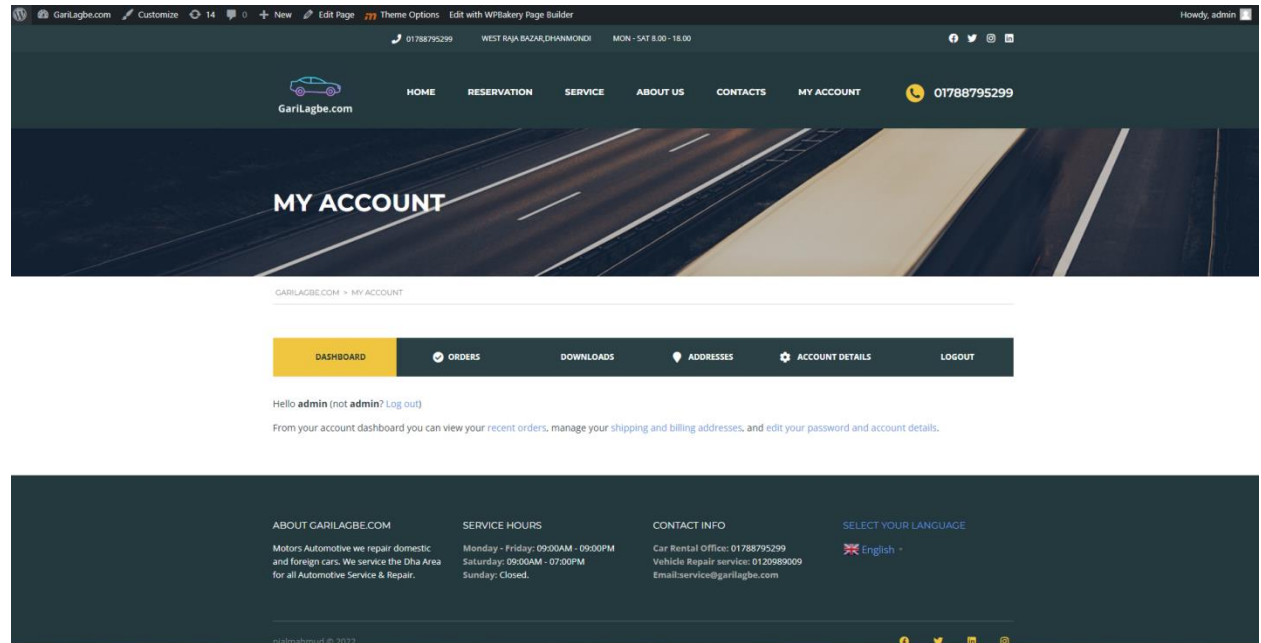


Fig 4.10: My Account

4.2 Back-end-design:

The back end of a website is a section that users cannot access. The majority of back-end operations include setting up servers and databases.

code: As back-end code, we used a framework WordPress. We designed the back-end part of our website using this. We implemented this website by using WordPress theme and its plugins and customize.

Database loading: To load the data, we used phpMyAdmin.

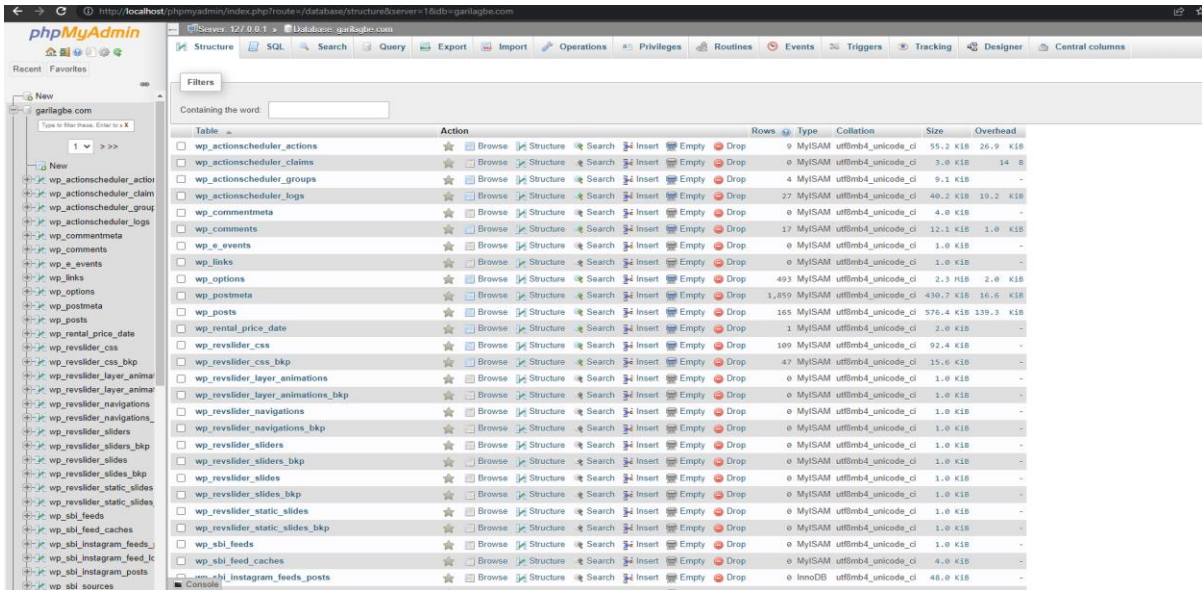


Fig 4.11: My Admin Database

Server: We used an Apache server with XAMPP.

The screenshot displays the XAMPP Control Panel v3.3.0 interface. At the top left is the XAMPP logo. The title bar reads "XAMPP Control Panel v3.3.0". On the right side, there are several utility buttons: Config, Netstat, Shell, Explorer, Services, Help, and Quit.

| Service | Module | PID(s) | Port(s) | Actions |
|--------------------------|-----------|--------------|---------|-------------------------|
| <input type="checkbox"/> | Apache | 4764 6324 | 52456 | Stop Admin Config Logs |
| <input type="checkbox"/> | MySQL | 6888 | 3306 | Stop Admin Config Logs |
| <input type="checkbox"/> | FileZilla | | | Start Admin Config Logs |
| <input type="checkbox"/> | Mercury | | | Start Admin Config Logs |
| <input type="checkbox"/> | Tomcat | | | Start Admin Config Logs |

Below the table is a log window showing the following output:

```

9:19:39 PM [main] Initializing Control Panel
9:19:39 PM [main] Windows Version: Home 64-bit
9:19:39 PM [main] XAMPP Version: 8.0.8
9:19:39 PM [main] Control Panel Version: 3.3.0 [ Compiled: Apr 6th 2021 ]
9:19:39 PM [main] You are not running with administrator rights! This will work for
9:19:39 PM [main] most application stuff but whenever you do something with services
9:19:39 PM [main] there will be a security dialogue or things will break! So think
9:19:39 PM [main] about running this application with administrator rights!
9:19:39 PM [main] XAMPP Installation Directory: "c:\xampp\"
9:19:39 PM [main] Checking for prerequisites
9:19:40 PM [main] All prerequisites found
9:19:40 PM [main] Initializing Modules
9:19:40 PM [main] Starting Check-Timer
9:19:40 PM [main] Control Panel Ready
9:19:43 PM [Apache] Attempting to start Apache app...
9:19:43 PM [Apache] Status change detected: running
9:19:43 PM [mysql] Attempting to start MySQL app...
9:19:44 PM [mysql] Status change detected: running
  
```

Fig 4.12: XAMPP Control

Here are all the plugins to build a website:

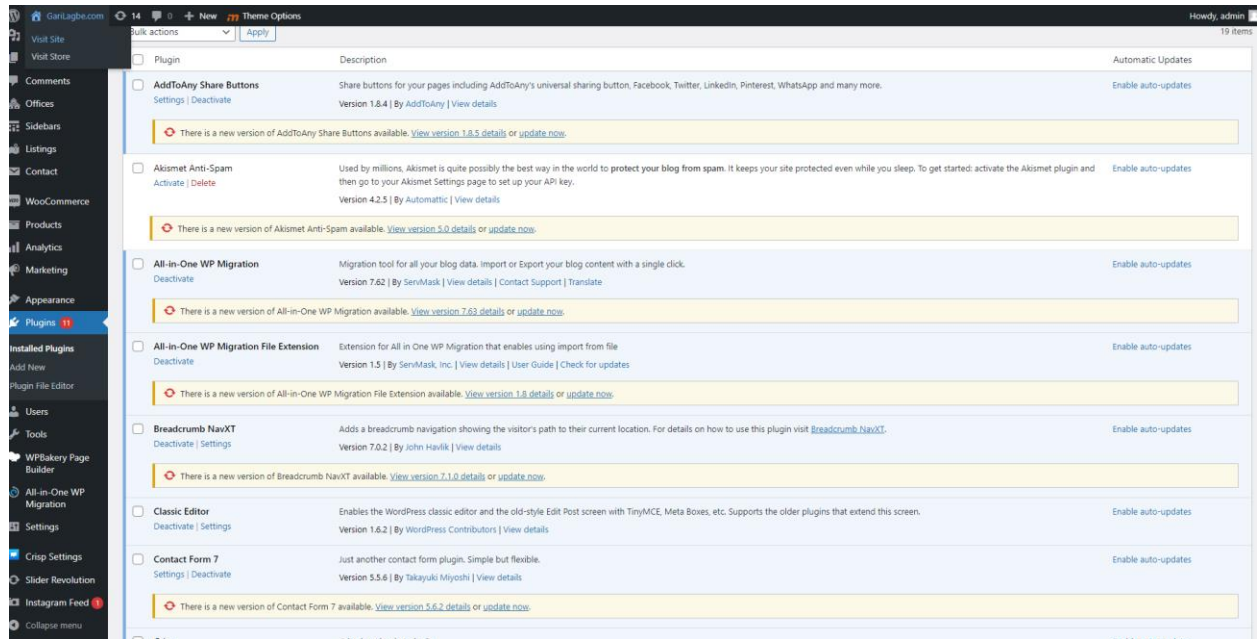


Fig 4.13: Plugins[7]

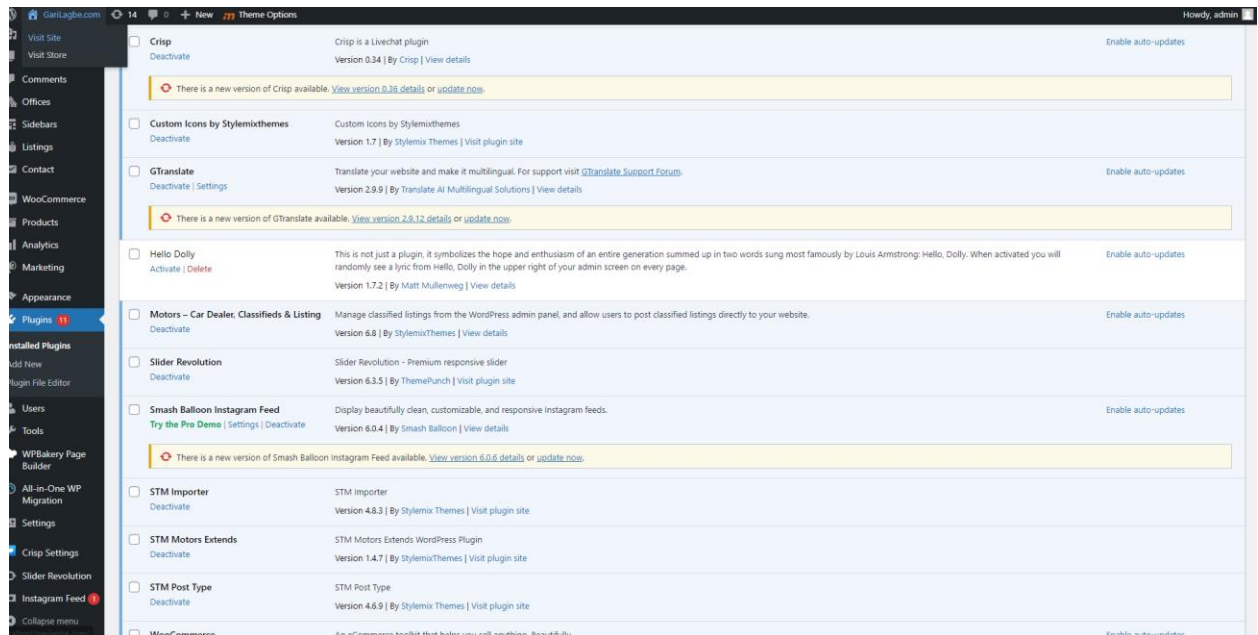


Fig 4.14: Plugins[8]

Live: We used localhost to live the application.

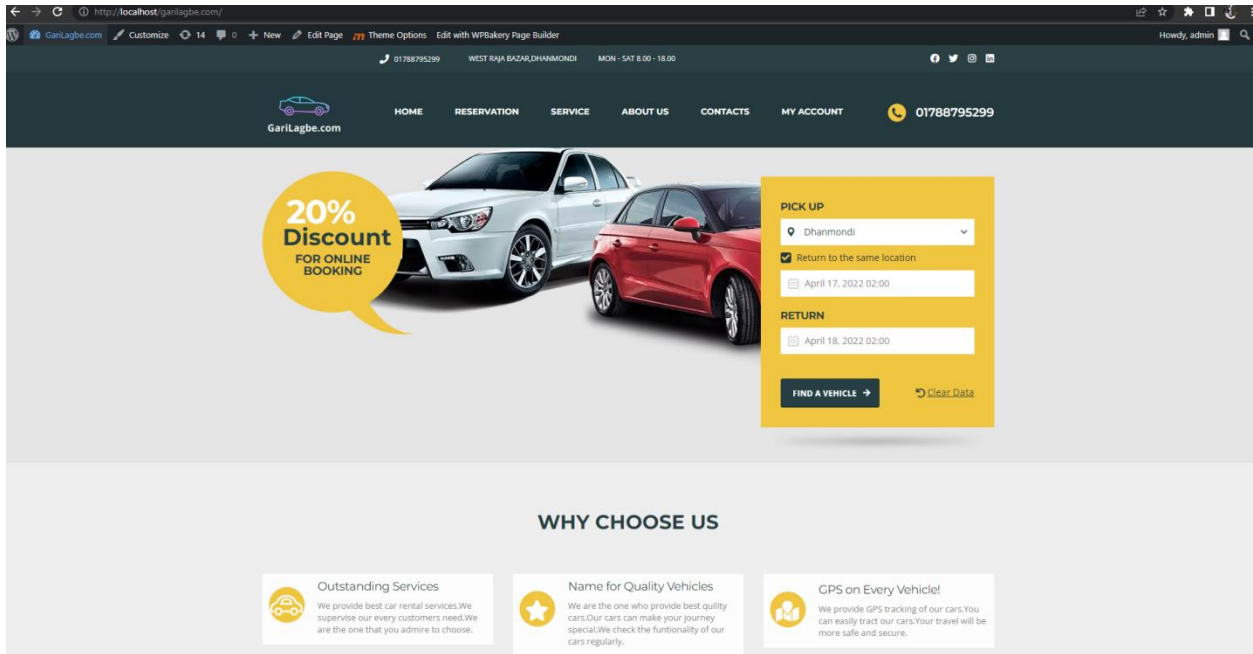


Fig 4.15: Live Website

4.3 Interaction Design and User Experience

The strategy of combining users with the system is known as interaction design. This methodology will enable us to create a user-friendly website. It would improve the usability of our system.

However, UX (User Experience) design is more like influencing how users feel about technology.[11]

4.4 Implementation Requirements

We used the C panel editor to host the application for implementing our project.

We used it with PHP programming language in the back-end using the WordPress framework.

We also use a browser and a local host to run the project by using Xampp.

CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Implementation of Database:

We used the

- MySQL database and
- WordPress framework [6]

to implement the database.

Using the PHP programming language, a website can be built using WordPress. It is a strong framework that is simple to use.

An open-source relational database management system is called MySQL.

5.2 Execution of Front-End Design

For designing the front-end, we use- WordPress, WordPress themes and plugins, HTML, and CSS.

5.3 Implementation of Interactions:

We talk about our concept with our teachers, friends, and supervisor for comments on our website. They offer us suggestions on how to make our work better. To make our website user-friendly, we made significant use of features and options.

5.4 Testing Implementation:

The foundational step in building a website is testing. In the course of processing the website, we repeatedly tested our project. Throughout this testing, we discovered a lot of faults and mistakes. However, since we thoroughly tested the website before launching it, fixing faults and issues now takes much less time. To make sure we don't run into any problems and create a reliable website, we should test systems frequently.

CHAPTER 6

IMPACT ON SOCIETY, ENVIRONMENT, AND SUSTAINABILITY

6.1 Impact on Society

Through a mobile app, ridesharing enables anyone in need of transportation to contact a pool of drivers. The "sharing economy" has several different components, but ridesharing is by far the largest. Platforms for ridesharing bring together drivers and cars with passengers looking for rides at a set cost. A customer often uses a smartphone app to order a ride at a specific time and location. The customer is then guided through a number of steps by the phone app, including the ride's real or anticipated cost, the driver's location, and the anticipated wait time.

Car-sharing users may find a ride via a smartphone app. A ride-sharing app finds the closest accessible car and matches the passenger with it. On the basis of knowing when a car will come, passengers can accept or decline a ride with a driver. They do not need to call a taxi company and wait for a car to arrive after waiting for a taxi with a driver to appear on the street so they may hail it.

The ride-sharing system or software offers a wide range of vehicle options, so a user can choose one based on their preferences. As a result, people have a better overall experience and are more inclined to select an affordable mode of transportation. Taxi riders frequently have no idea how much their trip will cost them because they are unable to choose how much to tip. When utilizing a ride-sharing app, users can choose between a standard or luxury vehicle with a driver. Second, passengers are always informed of the ride fare prior to boarding the vehicle.

Instead of wondering about having enough cash for a driver, users of ride-sharing smartphone applications can pay with a credit card. The majority of ride-sharing apps allow

customers to tip drivers, which can subsequently be paid for using a credit card. When using ride-sharing services, the destination is chosen by the passengers. The need to share a ride with others is not always required. It might be a great substitute for hailing a cab. However, the option to split costs is the main benefit that ride-sharing services offer to users. Our main purpose is, through this web application, we provide different types of cars to rent for our clients based on different types of occasions and for casual use. We will also provide highly decorated car servicing for branded cars and also for classic cars.

Our website will offer a variety of brand-name car parts available so that customers may purchase them there as well. For individuals who want to drive their dream cars, we will have branded vehicles available for rent. Additionally, folks who have extra cars can register them here to make money. Because users would be able to ride, maintain, and purchase everything related to cars in one location, our suggested system will be a one-stop solution for vehicles like private cars and micros.

6.2 Impact on Environment

Ridesharing services encourage users to postpone car purchases, reducing the overall number of automobiles on the road. According to studies, there are typically between 9 and 13 fewer cars on the road for every car-sharing vehicle in operation. People want to escape the exorbitant costs of car ownership, which is why this is the case. So they either delay getting a car or sell one.

Additionally, it has been calculated that individuals using ridesharing services significantly cut car emissions by between 34% and 41% annually. The biggest contributors to air pollution are cars and small vehicles. Global warming is accelerated by air pollution, as we have previously witnessed. But as we've discovered, ridesharing contributes to a decrease in the number of cars, and fewer cars emit less carbon dioxide. It claims that each vehicle operated by a ridesharing company like Uber or Lyft reduces greenhouse gas emissions by 5.5 to 12.7 tons annually.

According to scientists, this helped to reduce overall car emissions of carbon dioxide by roughly 10%.

Ridesharing can therefore aid in reducing global warming. We already know that the world's remaining oil reserves are dwindling quickly. We should work to efficiently use it in addition to conserving it.

Road congestion generates travel delays that cost more than 3 billion gallons of fuel to burn in addition to nearly 7 billion additional hours of wasted time in traffic. As previously said, ridesharing thus dramatically lessens the traffic on the roads. With fewer cars on the road, less gasoline is needed, extending the useful life of non-renewable energy sources. The ecology is heavily impacted by vehicles. Even while people can't entirely quit driving, they can still help the environment by using ridesharing services. Prior to it being too late, it is crucial to act and enhance the environment. Renting a car rather than purchasing a brand-new one is one way that individuals may personally improve the world.

6.3 Ethical Aspects

Particularly during the pandemic when isolation is a concern, many travelers disregard renting a car. Customers choose a convenient and prompt service, yet it is no longer rare for car rentals to be late. Vehicles choose-US wait each 1/3 of the time, generally. Car rental businesses must meet their client's needs given the intense competition in this market.

A car rental reservation machine is what you need if you want to take online reservations and easily manage your fleet (RRS). This article will describe the basic components of a vehicle RRS, review some of the key software vendors, and offer advice for those who are willing to put in the work to create their own platform.

Automobile rental Modules of the reservation system:

When a user decides to rent a car in advance, they go to a car rental website or app and find a car that suits their needs. Then, if a deposit is required, book it online and pay for the selected condo time.

This client shows up at the car rental location on the scheduled day to pick up the desired vehicle. A representative creates copies of their identification, goes through the details of the lease, briefs them on any special features of the vehicle, and then hands them the keys. The agent examines the car's mileage and looks for any damages as the customer drops it off.

The car rental system actually involves a lot of additional internal processes. They can be automated to increase service speed and quality. Let's focus on how each car's RRS module contributes to it. [9]

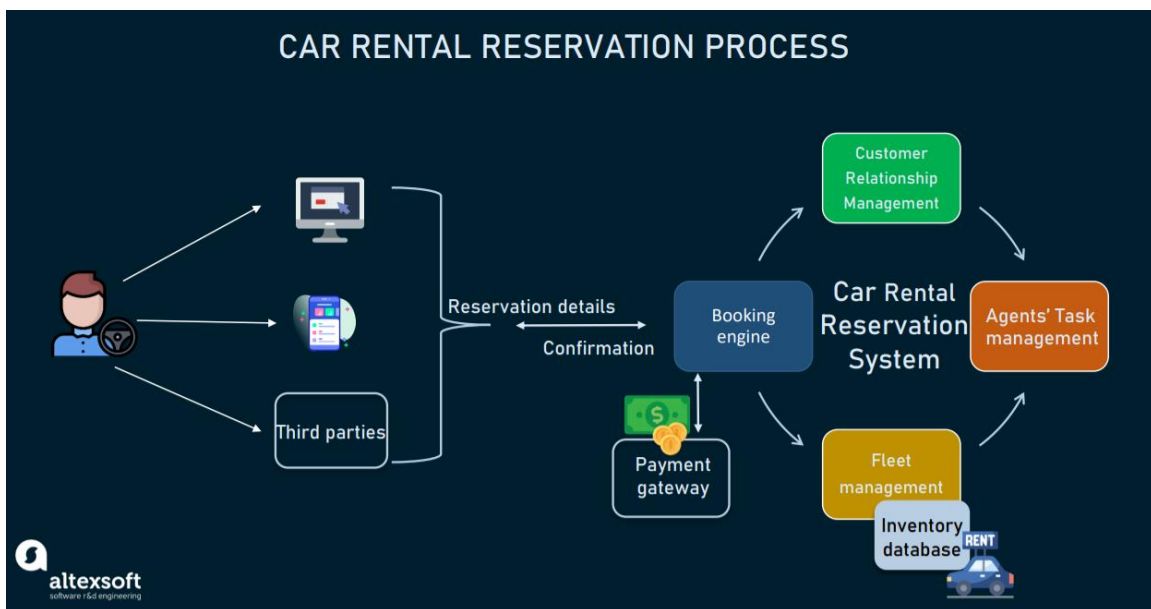


Fig 6.1: Car Rental Reservation Process [13]

Engine for booking car rentals:

The core of the system for making car rentals is a booking engine.

The engine retrieves the most recent list of vehicles available for purchase, along with their associated add-ons and prices, when it is synced with the stock database.

Additionally, the module frequently utilizes the following capabilities.

payment processes. The reservation engine is linked to a payment gateway, such as PayPal, Braintree, or Stripe, and it collects online payments from customers and generates digital invoices. Additionally, it computes all rental expenses, keeps track of outstanding client invoices, and generates financial reports.

Processing of reservations:

1. To complete the reservation.
2. The engine sends reservation information to the fleet control module.
3. Customer courting management module enters buyer information.
4. Notifies the assignment management module so that agents can put together the car on time.
5. And sends the customer confirmation in their reservation.

Handling the avenues of distribution:

Third parties may also make bookings.

By integrating with the booking engine, GDSs, OTAs, and other travel consolidators can access the car rental itinerary and distribute it on their end. Their referral rates are calculated and assigned by a booking engine. A car rental agent manually enters the walk-in and phone reservations into the system.

Management of fleet

A fleet involves extensive monitoring, including tracking down and distributing vehicles to clients as well as keeping track of the condition of each vehicle and its history of damage and repairs. On fleet management, we have an exhaustive essay.

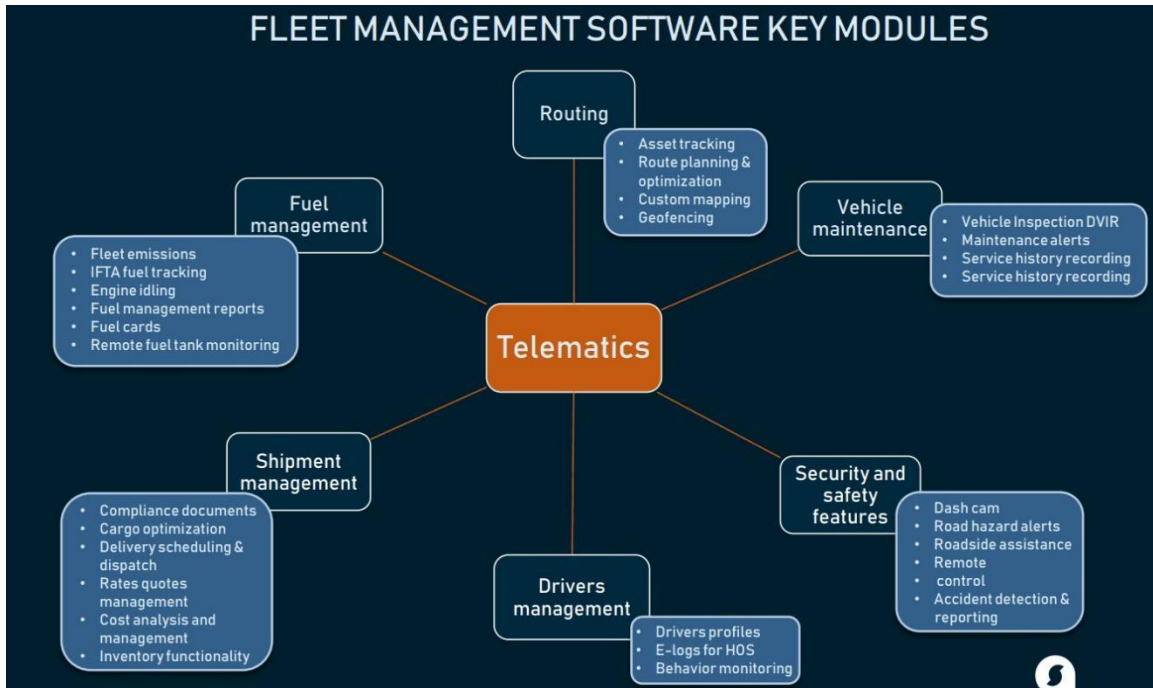


Fig 6.2: Fleet management Key Modules

6.4 Sustainability Plan

In all facets of our business, Rent a Car Management System is dedicated to increasing variety, acceptance, and belonging. We improve our company when we make use of the ideas, viewpoints, backgrounds, and views of our employees. CarMax has been on this trip before; it is ingrained in who we are. We are more dedicated to realizing our mission. The following are included in our D&I framework:



Fig 6.3: Purpose, Vision, Focus & Values

Some of the unique features and some of the pro version features:

- The most flexible estimating framework for any estimating model that adheres to the Open Travel Guidelines.
- Individualized Rate Plans (Harm Waiver, Guaranteed, Non-Refundable Rates, etc.).
- Stylish vehicle management features with special emphasis on the sub-units
- A chart of availability that includes monthly calendars.

Overview of the pricing calendar.

- Professional rental order management capabilities.
- A back-end portion with several features.
- Front-end bookable reservation process.
- Eight distinctly different front-end Sees (7 sorts of Brief code for pages).
- A multilingual back with integrated interpreting capabilities.
- Calendar for seasonal estimation and rates with one-click modification.
- Limitations on the minimum/maximum number of rental days and the authorized pick-up/drop-off days during the week.
- Particular charging information from the clients may be requested in custom sections.
- Additions to the rental order, such as Options and Additional Administrations.
- Charges for after-hours service and for specific locations combined.
- The administrative window for customers.
- Graphs and insights related to the various rental orders.
- Personalized Installment Plans with actual bank doors that accept credit cards.
- Coupons that can be used to apply discounts to orders.

Our associates, clients, and other visitors are all protected by sophisticated security and protection software. When it comes to how we service our groups and perform our studies, safety is typically given high priority.

CHAPTER 7

CONCLUSION AND FUTURE SCOPE

7.1 Conclusion

From Bangladesh's standpoint, there are certain opportunities and difficulties with ride-sharing services. In order to properly expand this service to other cities, the executives and the legislative body should take the proper steps to address the issues and dangers while maximizing the chances and opportunities. The government can play a vital role in improving the quality and services provided by the ride-sharing company by, among other things, offering loans with favorable terms and conditions, assisting with route approval and license applications, providing logistics and infrastructure support, and subsidizing startups. To address the issues they are currently facing, the government can also review the 5% tax imposed and grant tax rebates. The company must spread to and concentrate on other cities as soon as feasible in order to improve the quality of apps and servers. In order to become known, and acceptable, and help the vendors understand the relative benefits of using this service, they must also work to raise awareness of their services and make sure that all potential consumers are aware of them through effective promotion and advertisement.

7.2 Future Opportunities

We have prepared this application for our Final Project. So, we have had to do it in a limited time. For that we couldn't do many variations and also couldn't add many features. If we get any opportunities later to improve our website, we will surely do it. We would like to change our system from the rider-driver to the rider-rider system. So that a rider can share his fare with another rider easily. As a result, we will be able to connect every kind of vehicle in our system from Rickshaws to Private cars. We want to add more languages so anyone can use it easily. We want to add more options like a safety button for our passengers, so by clicking that button our admin will be notified that a passenger is in danger. Besides we want to add an option for car owners who would like to sign up for their vehicle on our website to earn money.

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An online rent-A-Car management system

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