# **DEVELOPMENT OF A WEB APPLICATION: RENTGO**

 $\mathbf{BY}$ 

# **Mohammad Mostafizur Rahman Tuhin**

ID: 201-15-3280

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

Supervised By
Ms. Taslima Ferdaus Shuva
Assistant Professor
Department of CSE
Daffodil International University

Co-Supervised By
Ms. Nusrat Khan
Lecturer
Department of CSE
Daffodil International University



# DAFFODIL INTERNATIONAL UNIVERSITY DHAKA, BANGLADESH JANUARY 2024

#### APPROVAL

This Project/internship titled "Development of Web Application Rent Go", submitted by Mohammad Mostafizur Rahman Tuhin, ID No: 201-15-3280 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 January 25, 2024.

# BOARD OF EXAMINERS

Dr. Md Taimur Ahad (MTA)

Associate Professor & Associate Head

Department of Computer Science and Engineering Faculty of Science & Information Technology Daffodil International University

Internal Examiner

Nazmun Nessa Moon (NNM)

Associate Professor

Department of Computer Science and Engineering Faculty of Science & Information Technology Daffodil International University

Internal Examiner

Chairman

Raja Tariqul Hasan Tusher (THT)

**Assistant Professor** 

Department of Computer Science and Engineering Faculty of Science & Information Technology Daffodil International University

**External Examiner** 

Dr. Md. Zulfiker Mahmud (ZM)

Associate Professor

Department of Computer Science and Engineering Jagannath University

CDaffodil International University

# DECLARATION

I hereby declare that, this project has been done by us under the supervision of Ms. Taslima Ferdaus Shuva, Assistant Professor, Department of CSE Daffodil International University. I also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

Supervised by:

Assistant Professor Department of CSE Daffodil International University

Co-Supervised by:

Hurrot khan 23/01/24. Ms. Nusrat Khan

Lecturer

Department of CSE Daffodil International University

Submitted by: Tuhin

Mohammad Mostafizur Rahman Tuhin

ID: 201-15-3280 Department of CSE Daffodil International University

©Daffodil International University

# **ACKNOWLEDGEMENT**

First I express my heartiest thanks and gratefulness to almighty God for His divine blessing making it possible to complete the final year project/internship successfully. I am grateful and wish profound indebtedness to Ms. Taslima Ferdaus Shuva, Assistant Department of CSE Daffodil International University, Dhaka.Deep Knowledge & keen interest of our supervisor in the field of "Computer Science and Engineering" to carry out this project. Her endless patience, scholarly guidance and continual encouragement, constant and energetic supervision, constructive criticism and valuable advice, reading many inferior drafts, and correcting them at all stages have made it possible to complete this project. I would like to express our heartiest gratitude to Professor Dr. Sheak Rashed Haider Noori, Professor and Head, Department of CSE, for his kind help to finish our project and also to other faculty members and the staff of CSE department of Daffodil International University. I would like to thank our entire coursemates at Daffodil International University, who took part in this discussion while completing the coursework. Finally, we must acknowledge with due respect the constant support and patience of our parents.

# **ABSTRACT**

A platform called Rent Go property Renting automates the entire process of renting a property. This project aims to lessen the burden of property owners and the pain of tenants in the process of finding rental properties. These days, bachelors who relocate for employment or school frequently struggle with housing issues. Bachelors can also utilize this initiative to find affordable apartments in the chosen location without having to leave their homes to ask whether any apartments are available. Rent Go provides vehicle rentals, property management, and apartment tours.

# TABLE OF CONTENTS

CONTENTS	<b>PAGE</b>
Board of examiners	i
Declaration	ii
Acknowledgements	iii
Abstract	iv
CHAPTER	
CHAPTER 1: Introduction	2-5
1.1 Overview	2
1.2 Motivation	2
1.3 Objective	2
1.4 Synopsis of the structure	3
1.5 The anticipated result	4
1.6 Report Formatting	5
CHAPTER 2: Background	6-9
2.1 Initials	6
2.2 Correlated Pieces	6-7
2.3 The extent of the issue	8
2.4 Obstacles	9
	10-13

# **CHAPTER 3: Requirement Specification**

3.1	Requirement Specification	10
3.2	Utilization Case Illustration	10
3.3	Requirement Collection and Analysis	11
3.4	Business Process Model	11
3.5	ER Schematic	12
3.6	Schematic of the Class	13
СН	APTER 4: Design Specification	14-25
4.1	Front-end Design	14-15
4.2	Back-end Design	15
4.3	General Initiatives	15
4.4	Database Controller	16
4.5	Installation Conditions	16
4.6	Necessary Software	16
4.7]	Registration	17
4.8	Check in	17
4.9]	Inventory of Properties	18
4.10	Transportation	19
4.11	Overview of Ourself	19

4.12 Panel for Users	20
4.13Supervisors pannel	21-24
4.14Highway schematic	24
CHAPTER 5: Implementation and Testing	25
5.1 Database Execution	25
5.2 Execution of Front-End Design	25
5.3 Execution of Testing	25
CHAPTER 6: Impact on Society, Environment and Sustainability	26
6.1 Effects on Community	26
6.2 Effects on Surroundings	26
6.3 Moral Consideration	26
6.4 Plan for Sustainability	26
CHAPTER 7: Conclusion and Future Scope	27
7.1 In summary	27
7.2 Possibility of Additional Developments	27
REFERENCES	28

# LIST OF FIGURES

FIGURES	PAGE NO
Fig 2.2.1 Bproperty	6
Figure 2.2.2: BDTO-LET	7
Figure 2.2.3: Rents.com.bd	7
Figure 3.2: Utilization Case Illustration	10
Figure 3.4: BPM Schematic	11
Figure 3.5: ER Schematic	12
Figure 3.6: Schematic of the Class	13
Figure 4.8: Registration page	17
Figure 4.9: Check in	17
Figure 4.10:Front Page Layout	18
Figure 4.11: Inventory of Properties	18
Figure 4.12: Transportation	19
Figure 4.13: Overview of Ourself	19
Figure 4.14: Speak with Us	20
Figure 4.15:Panel for Users	20
Figure 4.16.1: Reservations for Transportation	21
Figure 4.16.2: Reservations for Homes	21
Figure 4.16.3: Every Customers	22
Figure 4.16.4: Owners of Real Estate	22
Figure 4.16.5: proprietor asked for	23
Figure 4.16.6: Supervisors	23
Figure 4.16.7: Include a Asset	24
Figure 4.17: highway schematic	24

# Introduction

# 1.10verview

Rental home method website, which is created with React.js, modifies administration method.Undertaking is stylish, effective, and easy to use. The needs of renters and homeowners are different with Rent Go. Rent Go enables homeowners to add, hide, and remove things, as well as schedule apartment tours and trucks to move their belongings. Renters' stress and homeowners' workload are reduced by using a home rental management system. Minimize human mistake as well.

# 1.2Motivation

The necessity to update the house rental procedure in the housing industry served as the driving force for the development of the House Renting Management System. Apartment rentals might be difficult to arrange using traditional house rental procedures. Renters who use traditional techniques have to visit different buildings to see whether any apartments are available. This requires stress and takes a lot of time. Overall, the house rental systems are improved by the House Renting Management System.

# 1.30bjectives

The Home Renting Management System keeps track of the available apartment lists, owners lists, etc. to reduce the burden on owners and the stress that comes with looking for a place to live.

# **1.4**Synopsis of the structure

The Property Rental System for Management is a web-based application created with React.js in addition MongoDB. It streamlines all processes related to managing house rentals inside a digitalized system. The system is designed to address the issues associated with conventional hospital administration systems, such as laborious manual processes, human fallibility, communication gaps, and security vulnerabilities.

Essential elements:

User Interface: The user interface of this system is sleek, contemporary, and visually appealing. Additionally, it is very responsive and enables users to browse effortlessly.

Owner Management: The owner management module is responsible for overseeing the administration of owners, including the tasks of approving and removing them as necessary.

Reservation Scheduling: A flexible mechanism that allows users to create and manage reservation plans, featuring the option to set particular times and days for reservations.

Truck Reservation: Users provide the required information to reserve trucks. Upon successfully reserving a truck, the system administrator will personally call the user and determine the fee for shipping. Subsequently, the administrator will provide approval to the booking request.

Data Storage and Security: The backend server securely keeps all information linked to houses and renters online, guaranteeing both data security and accessibility. Authentication is necessary to safeguard sensitive data inside the system.

# 1.5The anticipated result

Enhanced Efficiency: Automation of the owner's activities and the optimization of their management process. The House Renting Management System minimizes the time and labor needed to oversee property reservations.

Minimized Human Expense: The use of automation in several procedures within the system results in reduced rental costs, while guaranteeing enhanced precision in the process for Managing House Rentals.

User happiness: Through the implementation of an easy to use, effective, and reliable House Rental Managing framework, we expect to enhance the ultimate satisfaction of both property owners and tenants.

# 1.6 Report Formatting

Section 1: Introductory

This section provides an overview of the House Renting Management project, including its history, objectives, and the backdrop of the housing business.

Chapter

#### 2: Introduction

This section delineates the fundamental components of the infrastructure and its corresponding parts, as well as the challenges faced by the project and comparisons with other frameworks.

Chapter

# 3: Specification of Requirements

This section will provide a description of several models, use cases, ERD diagrams, and combinations of essential criteria.

# Chapter 4: Specifications for Design

The infrastructure for both server-side and client-side programs will be addressed comprehensively.

# Chapter 5: Execution and Validation

This section will provide an analysis of procedure for evaluating and computation for the Home Rental Supervisory Method. It will include both method, as well as evalution of execution. In order to ensure that the method meets the intended performance requirements and achieves the set aim.

#### Chapter 6: Summary

An analysis of the challenges encountered during the development of the House Renting Management System, along with recommendations for including additional functionalities.

# **Background**

The system for managing property rentals seeks to address the issues by creating a user-friendly, contemporary, and fully automated framework for managing property listings and reservations in the home management procedure.

# 2.1Initials

The system for managing property rentals is a sophisticated online application created to computerize and optimize the whole process of renting a property. Developed using the React.js framework. The objective of the online application is to substitute conventional, labor-intensive procedures with a contemporary, intuitive resolution. The program offers a unified platform for efficiently managing several facets of property and bookings. These include granting owner permissions, adding, concealing, and deleting properties, as well as removing owners and deleting property-related reports.

#### 2.2Correlated Pieces

The notion of automating the process of renting houses has been investigated in several research and initiatives.

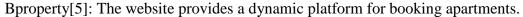




Fig 2.2.1: Properly

BDTO-LET [3]: This is a rental scheme specifically designed for apartments in Bangladesh.

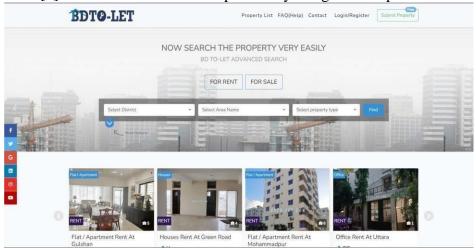


Fig 2.2.2: BDTO-LET

Rents.com.bd [2]: This is an interactive website that functions as a renting system.



Fig 2.2.3: Rents.com.bd

# 2.3The extent of the issue

Following domains are included in the problem's scope:

- Management of house owners: This includes approving and overseeing homeowners as well as promoting contact between them.
  - Scheduling: Automate the house tour scheduling procedure to reduce conflicts and make the best use of the resources at hand.
  - Property management: Grant all requests from homeowners after conducting due diligence. Next, study the property review and the property list. If a bad review is discovered, look into the property owner's actions and, if proven guilty, remove them from
  - the list of owners. conceals all of his possessions from the system as well.
  - Truck booking: A user will be contacted by phone after making a truck reservation. Next, ascertain the shipment's specifics and adjust the costs. The booking will be confirmed by the admin following the renter's confirmation.
  - Data management and storage: Safely keeping all homeowner Among the problems that the Home Renting Management System aims to resolve are many that concern homeowners. The goal is to automate and digitize the management of rental properties.

#### 2.4Obstacles

Numerous obstacles had to be overcome during the House Renting Management System's development and deployment phases in order for the project to be successful. Among these difficulties are:

- User adoption: Assistance may be needed to persuade homeowners and tenants to embrace the new system and adjust to the difficulties involved in managing rental properties.
- Data security: Safeguarding private information stored on cloud servers is essential to maintaining confidence and complying with legal regulations.
- Integration with current systems: It can be difficult to integrate the house renting management system with the current platforms that home owners use.
- Performance and dependability: A system with exceptional performance and dependability that can manage substantial data volumes and assist users without sacrificing velocity.

# **Requirement Specification**

# 3.1Requirement Specification

The system for managing property rentals delineates the essential functional as well as non-functional prerequisites that must be met for the system to effectively facilitate the digitization of the house rental management procedure. Below is a description of these prerequisites

# 3.2Utilization Case Illustration

The goal of the React.js web application used to create the home Renting Management System is to digitize home renting chores like flat compilation, for trips ask.

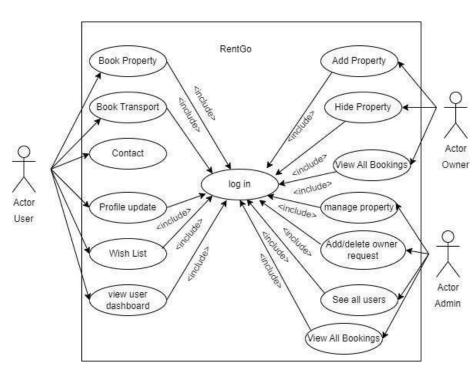


Fig 3.2: Utilization Case Illustration

# **Requirement Analysis**

Requirement gathering evaluation which entails acquiring evaluating management expectations and needs, is a crucial component of every system building procedure. Through this procedure, the system's ability to meet the requirements is guaranteed.

# **3.3Business Process Model:**

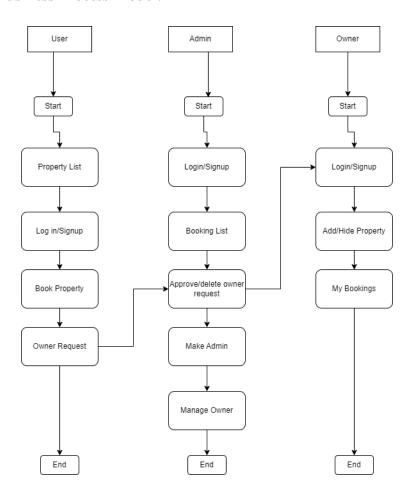


Fig 3.4: Business Process Model (BPM).

**3.4ER Schematic**: A graphical depiction of the data model that serves as the foundation for a database's structure is called an entity-relationship (ER) diagram. It is a useful tool for database design that illustrates the relationships between various components of the system. ER diagrams are widely utilized during the conceptual and logical database design phases to simplify stakeholder communication and serve as a guide for the actual database implementation. ER diagrams consist of five parts. Entities, characteristics, cardinality, relationships, and primary keys are among them.

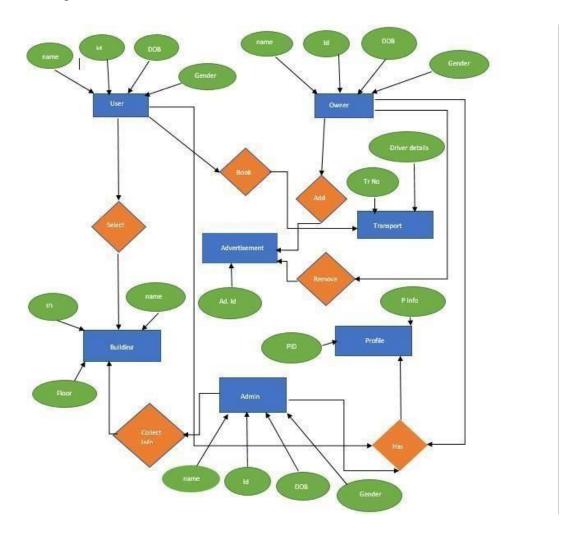


Fig 3.5: ER Diagram

# 3.5Schematic of the Class:

In an object-oriented system, a component shows the hierarchy and relationships between classes. It provides detailed information on the characteristics, goals, and relationships between the classes along with a graphical representation of them.

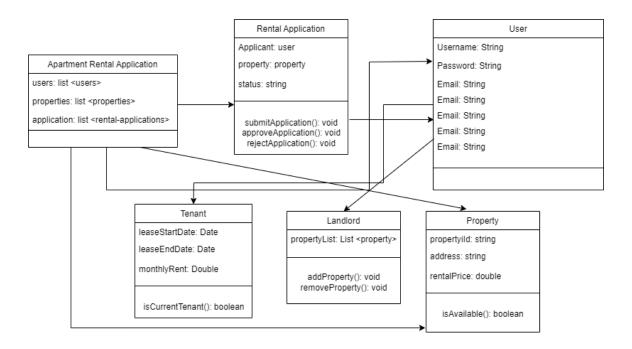


Fig 3.6: Class Diagram

# **Design Specification**

I explain this project's design and server plans within the Determination of Arrange

# 4.1Front-end Design

An object-oriented system's class structure and relationships are shown in the classdiagram. It offers a graphic representation of the classes together with information on their characteristics, functions, and relationships.

# React.js

Facebook, among other things, created the JavaScript library React.js, which was utilized in the development of Instagram.com. That aims produce the process of creating user interfaces for websites and applications for developers as easy and quick as possible.

#### **Tailwind CSS**

This is the section where you can design a distinctive user experience without having any prior CSS writing skills. Tailwind CSS is best used to write less code and speed up development processes. It comes with a useful design system that maintains consistency across several design specifications, such padding and speing, saving you the trouble of creating your own design.

# **DaisyUI**

Daisy UI is a CSS plugin designed specifically for Tailwind. This solution is compatible with all JavaScript implementations and would not need the use of a JavaScript package file. It is a Tailwind CSS-based open-source UI framework. It offers fast, semantic, component-focused courses with typical, solitary pupils in them. Tailwind class strings often result in applications with ugly markup.

#### 4.2Back-end Design

Engineers of all stripes have come to love MongoDB because of its scale-out architecture, which allows for scalable applications with dynamic data structures. Developers can store structured and unstructured data with ease thanks to MongoDB, a document database. JSON-like format is used to store documents. All sizes of businesses are using MongoDB to expand apps more efficiently and handle a wide range of data types. Suitable as the basis for any kind of application, MongoDB is a highly scalable and trustworthy database. Many benefits that are difficult to find on other data platforms for developers or elsewhere are offered to backend developers by it.

#### 4.3General initiatives

- 1. An online tool for managing rental properties with React.js integrated in
- 2. It lessens the burden on landlords and tenants alike.
- 3. Bookings and property lists are managed in real time.
- 4. A centralized backend server that makes managing and accessing data simple

5. Use interactive interface design to improve user experience.
6. Encourages the modernization and automation of the management of rental properties.

#### 4.4Database Controller

- 1. Oversee database operations and connections for the application.
- 2. Assure safe data storage
- 3. It allows all entities to do the CRUD (Create, Read, Update, Delete) operations.
- 4. Data synchronization and updates in real time within the web application.
- 5. Offers data validation and error management for database operations.
- 6. Provides sensitive data security, privacy, and access control.

# **4.5Installation Conditions**

I managed and controlled the database using Node.js, Express.js, and MongoDB as the stage. The database administration is handled by the MongoDB server. We can easily manipulate and retrieve data by utilizing the database controller.

# **4.6**Necessary Software

- 1. MongoDB
- 2. VS Code

**4.5Registration page:** Customers without an account can register.

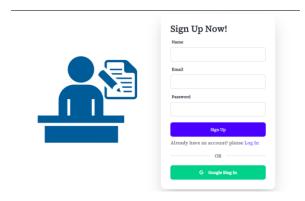


Fig 4.8: **Registration** 

**4.6Check in:** Customers can check in to the website. Customers can also check in with google account.



Fig 4.9: Check in

**4.7Inventory of Properties:** Users may use the search function to browse properties listed in the property list. Additionally, users have the option to reserve a property from the list of available properties.

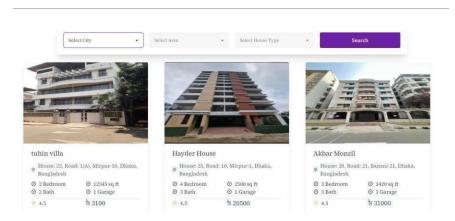


Fig 4.11: Property Lis

t

**4.8Transportation:** Users have the ability to reserve transportation services for the purpose of relocating things from one apartment to another. To reserve the transportation, one must complete .



Fig 4.12: Transport

**4.9Overview of Ourself :** Users may engage in discussions about the platform here.

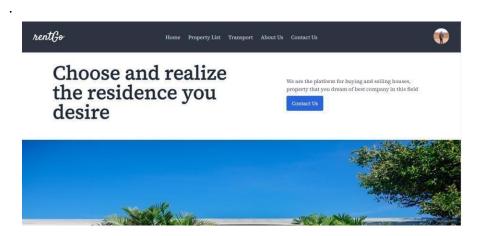


Fig 4.13Overview of Ourself

**4.10Panel for Users:** Users get access to transportation and accommodation booking services here.

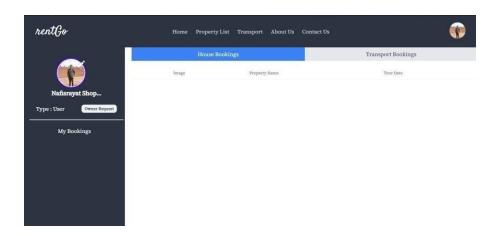


Fig 4.15: Panel for Users

**4.11Supervisor panel :**Manage all the bookings.

**Reservations for Transportation:** Here, he may oversee transportation reservations.

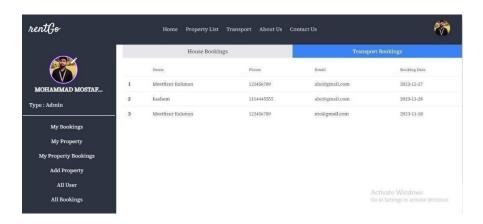


Fig 4.16.1: Reservations for Transportation

**Reservations for Homes:** Subsequently, customers may verify roster of residence reservations.

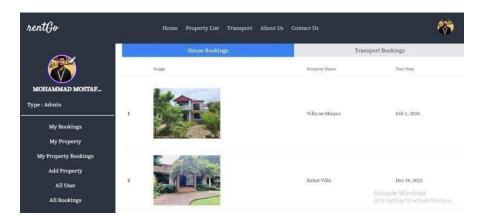


Fig 4.16.2 Reservations for Homes

**Every Customers:** The administrator has access to all data about users.

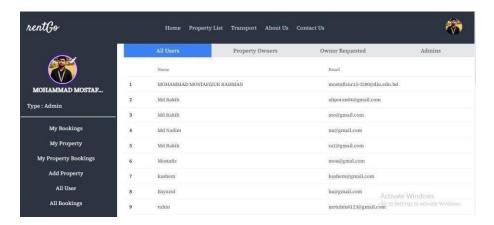


Fig 4.16.3 Every Customers

Owners of Real Estate: Administrators have access to the information concerning property owners.

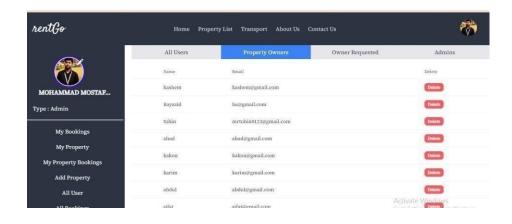


Fig 4.16.4 Owners of Real Estate

**proprietor asked for:** This option allows the administrator to either select or remove owner requests.

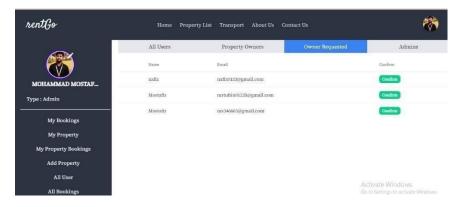


Fig 4.16.5 proprietor asked for

**Supervisors:** Allows supervisors to access and see the collection of records belonging to other administrators.

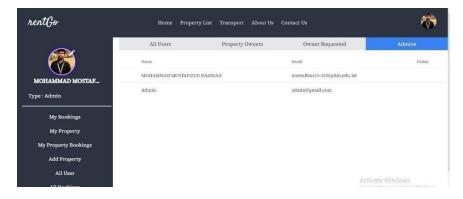


Fig 4.16.6: Supervisors

**Include a Asset:** The administrator has the ability to include an asset in the list of properties.

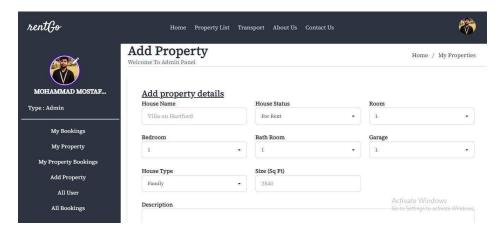


Fig 4.16.7: : Include a Asset

**4.12Road Map:** Users may access the rental's address here. Users may conveniently access the route map.

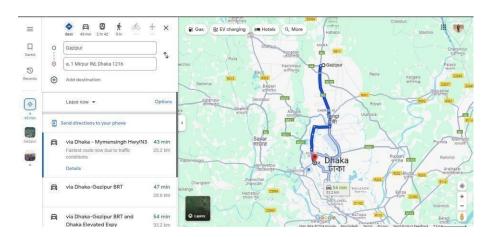


Fig 4.17 highway schematic

# **Execution and Testing**

#### **5.1Database Execution**

There is a document called MongoDB that provides the required scalability and flexibility, as well as the essential querying and indexing features. This project will benefit greatly from the efficient handling and saving of data by the MongoDB server. It will also be responsible for providing an efficient method of managing data storage.

# **5.2Execution of Front-End Design**

The goal of the front-end design implementation of the House Renting Management System is to produce an interactive user interface that facilitates the management of property lists. React.js is used in the front end development of this project. React.js is a powerful JavaScript toolkit that prioritizes responsiveness.

# **5.3Execution of Testing**

Testing is necessary for any kind of application. Every software program has occasional bugs. In the improbable event that faults discovered at an earlier stage can be rectified for a significantly lower cost.

# Impact on community Surrounding and Sustainability

# 6.1 Effects on Community

Any apartment booking community system would benefit from user-friendly design, which also has a positive social influence. It could increase people's knowledge of the rental apartment industry. Again, this will help families and single individuals locate appropriate accommodation.

# **6.2 Effects on Surroundings**

It doesn't negatively impact the environment. By giving users a forum to share digital content, it also lowers the demand for printed documents. Its objective is to manage property waste by minimizing or doing away with paperwork. We also made an effort to design our product with the goal of assisting people in resolving environmental problems. Mobile Application: By creating a mobile application, consumers may now more easily and satisfactorily access the apartment list with all of its features.

#### **6.3 Moral Consideration**

There are no ethical norms that are broken by the online application. The curriculum is appropriate for a wide range of individuals and communities worldwide. If a few distinct feature levels are adjusted, the project will be more palatable to all the organizations who can employ it.

#### 6.4 Plan for Sustainability

The initiative aims to continue being extremely sustainable throughout time. We used some contemporary technologies to develop some of the features in our project, so there's less likelihood that they would eventually become outdated. Long-term advantages to the project are greater.

# In summary

# 7.1 In summary,

The goal of the React.js-built House Rental Structure is to streamline and modernize the house rental administration procedure. Renters' stress levels drop and home owners' workloads are lessened. The system makes listing apartments, managing properties, and many other tasks much more efficient. Property owners have the ability to add, hide, and remove properties. Renters have the option of scheduling truck shipping as well as house tours. I utilized MongoDB, a centralized backend server, for the database; it makes information administration and access simple. A contemporary, digitalized method of renting a home is the house renting management system.

# 7.2 Possibility of Additional Developments

The house rental procedure is successfully automated and digitalized with the help of the React.js-built House rental Management System. There's always room for more advancement. For upcoming work, consider the following list:

- Live chat integration: By including the live chat function, the system can be integrated with another label. Tenants and owners can have discussions about issues.
- Notification integration: By integrating the notification feature, renters and house owners will be notified as soon as their reservation is confirmed.
- Mobile Application: By creating a mobile application, consumers can more easily and satisfactorily access the apartment list with all of its characteristics.

# **Reference:**

- [1] Thetolet, "The Tolet house rental company," Thetolet.com, https://www.thetolet.com/ (accessed Jan. 22, 2024).
- [2] "Find your perfect rental home," Houses for Rent Find Your Home on Rentals.com, https://www.rentals.com/. (accessed Jan. 22, 2024).
- [3] Rent. find your next place | apartments and houses for rent., https://www.rent.com/ (accessed Jan. 22, 2024).
- [4] "Housinganywhere," HousingAnywhere, https://housinganywhere.com/ (accessed Jan. 22, 2024).
- [5] "Housing and rentals rent houses, apartments and other real estate properties at rentola.com," 637,634 Housing and rentals rent houses, apartments and other real estate properties at Rentola.com, https://www.rentola.com/ (accessed Jan. 22, 2024).
- [6] "Discover A place you'll love to live," Trulia Real Estate Search, https://www.trulia.com/ (accessed Jan. 22, 2024).
- [7] "The most advanced for sale by owner and flat fee MLS platform," Houzeo, https://www.houzeo.com/ (accessed Jan. 22, 2024).
- [8] Zumper, "Houses, condos, and apartments for Rent," Zumper, https://www.zumper.com/ (accessed Jan. 22, 2024).
- [9] Investopedia, https://www.investopedia.com/ (accessed Jan. 22, 2024).
- [10] Yeehlow, https://www.yeehlow.com/ (accessed Jan. 22, 2024).

ORIGINALITY REPORT					
11% SIMILARITY INDEX	7% INTERNET SOURCES	0% PUBLICATIONS	9% STUDENT P	APERS	
PRIMARY SOURCES					
1 Submit Student Pap	ted to Daffodil Ir	nternational U	niversity	6%	
2 dspace Internet Sou	daffodilvarsity.e	edu.bd:8080		4%	
3 Submit Student Pap	ted to University	of Liverpool		1%	
4 pdffox. Internet Sou				<1%	

Exclude quotes On Exclude bibliography On Exclude matches

Off