ONLINE FUEL DELIVERY SYSTEM

BY

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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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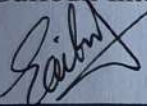**DHAKA, BANGLADESH**

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APPROVAL

This Project is titled **"Online Fuel Delivery System"**, submitted by Md Shadman Sajid Prodhan, ID No: 201-15-13798 to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfilment 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 22 January, 2024.
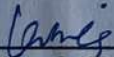
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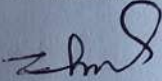Daffodil International University

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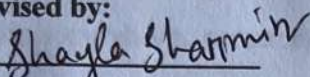Daffodil International University

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DECLARATION

We hereby declare that this project has been done by us under the supervision of **Ms. Shayla Sharmin, Senior Lecturer, 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.
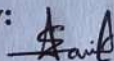
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ABSTRACT

As the world's population increases day by day, vehicles are also increasing, so is technology. People all over the world are trying to make life easier through technology. Therefore, in developed countries, petrol pumps are established and managed in an organized manner through specific online-based software systems. And thanks to the internet, things are becoming easy, attractive, and right. Servers that store data and facilitate its management and access are used by the Internet. The main features of software system are – When people want or cannot find something, this system i.e. software system comes into play. Bangladesh is therefore a developing nation. People are integrating technology into their software systems, businesses, and organizations. Additionally, these days, a website that does everything for a company exists. Additionally, we are working to create a nationwide website for gas stations that will be able to handle and display all of the data related to gas stations and online gasoline delivery. We have tried to cover share location, online delivery, fuel delivery anywhere, online payment, website visitors and general user and account management section for communication. The output of this software system is to earn profit by online delivery through share location, to earn profit by delivering fuel anywhere, to earn from online payment/account section, to earn profit based on visitors to the website, Monetization from general users etc. If our project is successful this website can be used from both client and server side. The entire software system is centrally monitored. Such a software system will be beneficial for all petrol pumps and will contribute to great progress. So, this website can be a big breakthrough for "Online Fuel Delivery System" software system.

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CHAPTER 1
INTRODUCTION

1.1 Introduction

Fuels refer to substances whose physical or chemical composition or change in state results in the release of energy. The word fuel means combustible. Fuels are generally produced by changing from one state to another. Fuels are available in different ways like underground, underwater, ocean etc. In our daily life we use fuel for various purposes. We use heat energy in cooking. We use heat energy to run vehicles, generate electricity etc. But how we get heat was once unknown. But the progress of science shows that heat energy can be converted into any other energy through energy conversion. We not only get heat by burning wood, coal etc. but we also use oil, wood, coal, petrol, kerosene, tree leaves etc. as fuel. We constantly use energy for some purpose. Especially petrol fuel without which our movement is impossible. We use motorcycles, micro, CNG, private cars, buses, trucks, ships, launches, airplanes, airplanes etc. to move from one place to another. Which cannot be imagined without fuel.

Today's increasing energy demands require different types of energy for machines. Among which Proton Exchange Membrane Fuel Cell (PEMFC), fuel, petrol etc. are widely used. Here we discuss the fuel delivery system including the internal gas diffusion of the machine using the projection algorithm. That is, through the projection algorithm, the nonlinear observer proposes a detailed online fuel distribution system (FDS) [1].

In this 21st century, we could understand how much energy is needed. Based on the need and importance of energy supply, developed a project related to Android application. That is, an Android platform has been developed where a safe and reliable online fuel delivery service can be provided if a vehicle driver is standing in the middle of the road for lack of fuel. Also, here K-Nearest Neighbours (KNN) algorithm will help to find petrol pumps [2].

Fuel consumption in any vehicle is immense. Because no vehicle can run without fuel. Develops a Delivery-FC 'tool' for forecasting ship fuel consumption and keeping delivery arrangements. Used to predict fuel consumption based on ship size, cruise, maximum speed, constant power, sea roughness [4].

Any type of fuel such as oil, coal, petrol, kerosene, fuel, compressed natural gas, methanol and ammonia etc. have been used for fuel. This dual mode use is highly fuel efficient and fuel can be stored for future use and used to reduce fuel consumption [5].

These days, technology is developing along with the global population, which is growing daily. People are attempting to use technology to simplify lives all throughout the world. Because of this, industrialized countries have devised online delivery systems at some gas stations that are run in an orderly fashion. And the internet is making it easier and more accurate. Servers are used by the Internet to store data and facilitate its management and access. Bangladesh has not yet adopted the idea of an online delivery system for gas pumps, but this will change in the near future. Being a growing nation, Bangladeshis are integrating technology into their businesses and organizations. These days, every business has a comprehensive website that serves as its online home.

Our goal is to develop a single website that can handle and display all of the information related to gas stations. We are trying to cover contact information, status update, live location, fuel availability, and accounts management section of petrol pumps. If our project is successfully completed, this website can be used by super admin, admin, employee. Through this one website, management authorities may keep an eye on and oversee everything, including job sharing, task shifting, hiring new staff, scheduling check-ups, and maintenance. Thus, this one website has the potential to revolutionize gas stations worldwide. Here in Figure 1.1 is added a picture of the welcome page of a website of an online fuel delivery system.
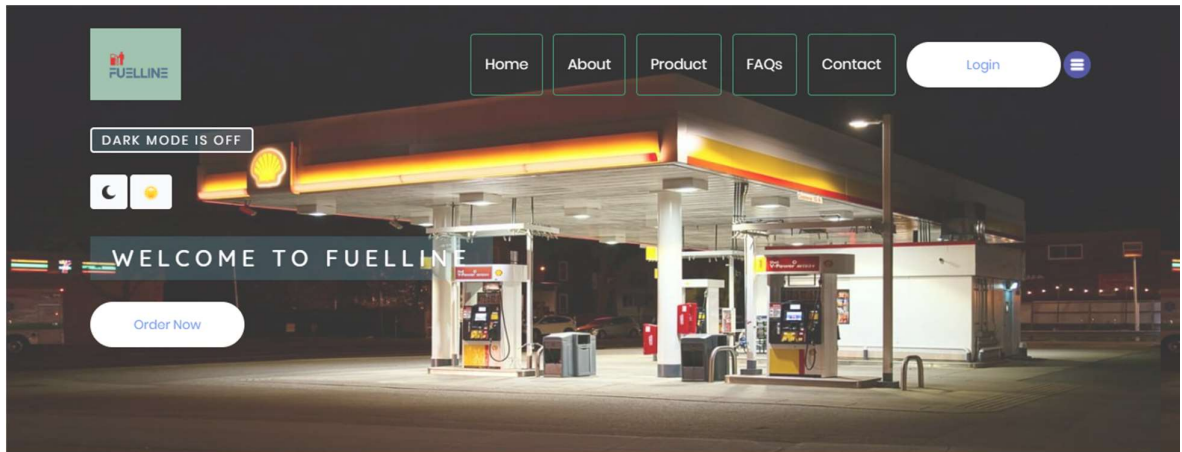
Figure 1.1: Welcome page of online fuel delivery system website

1.2 Motivation

The main features of our online fuel delivery software system are – This system effectively rescues people when they are stuck and cannot find the fuel pump. Online based fuel delivery. Finding and delivering fuel to stranded people through share location. Helping stranded people by providing fuel anytime anywhere. After placing the fuel order online, the payment should be made in the online payment/account section. Determining fuel quantity and fuel prices centrally

at gas stations. Attracting visitors and general users to the website with various offers. Lastly, central management software monitors the function of every fuel pump and software system. In order to guarantee that all administrators and regular users can operate the program correctly. keeping an eye on all offline and internet payment activities in the accounts department for ethical accounting. The last and main point is that this system can effectively ensure the rescue of people when they are stuck and cannot find the fuel pump.

That is, through this we have tried to cover share location, online delivery, fuel delivery anywhere, online payment, website visitors and general user and account management categories for communication. The output of this software system is to earn profit from online delivery through share location, earn profit from fuel delivery anywhere, earn from online payment/account segment, earn profit based on website visitors, earn profit based on downloads. Google Play Store, earning profit from common users etc. The entire software system is monitored centrally. So, this system will be beneficial for all petrol pumps and will contribute to great progress.

1.3 Objectives

The main objective of online fuel delivery system is to make profit by providing benefits to people. If we can deliver fuel to the people online then we will benefit from it and also serve the people. You can earn from home by delivering fuel online. By distributing fuel online, it will be possible to solve the fuel shortage at any time. Energy crisis is a huge problem nowadays. The purpose of online fuel delivery system is immense in solving this problem. That is, through our online fuel delivery software system we have tried to cover share location, online delivery, fuel delivery anywhere, online payment, website visitors and general user and account management categories for communication.

1.4 Expected outcomes

In near future if this system is properly implemented every petrol pump will be online in an orderly manner. The output of this online fuel delivery system software is to earn profit from online delivery through share location, earn profit from fuel delivery anywhere, earn from online payment/account segment, earn profit based on website visitors, based on downloads Making a profit. Earning profit from common users etc. The entire software system is monitored centrally. So, this system will be beneficial for all petrol pumps and will contribute to great progress.

1.5 Project Management and Finance

- Our internet-based gasoline distribution system is extremely sophisticated and computerized.

- Through our online gasoline delivery system, any individual or driver may make an order for fuel from the location where fuel is stranded.

- The administrators, staff, and authorized individuals in charge of the online gasoline delivery system will have their data properly documented online, making all of the documents accessible on the system's website.

- Senior authorities will have simple access to and monitoring of all gasoline distribution system information online, as well as online auditing capabilities.

- We have tried to cover contact information, status updates, live location, fuel availability, and accounts management section of petrol pumps online.

- Management authorities can monitor and manage everything including duty shifting, job sharing, adding new employees, check-up schedules and maintenance through this single website.

- If our online fuel delivery system is successfully completed, this website can be used by Super Admin, Admin, Employee, Sales Manager, Station Manager, Customers.

1.6 Report Layout

An online fuel distribution system can unify the nation's many petrol stations onto a single platform. This programme was created using Laravel, HTML, CSS, JavaScript, and PHP. Laravel serves as the framework as well. In this regard, there are seven sections in all. Section 2 provides background information; Sections 3 and 4 specify requirements; Section 5 deals with design specification; Section 6 deals with implementation and testing; and Section 7 discusses the influence on sustainability, society, and the environment. The paper will finally be concluded in Section 7.

CHAPTER 2
BACKGROUND

2.1 Preliminaries

We have created a software platform that allows any fuel stations in Bangladesh to sign up and provide their services online. Numerous advantages might arise if fuel pumps are integrated into this software or system. Like earning profit by online delivery through share location, earning profit by delivering fuel anywhere, earning from online payment/account category, earning profit based on visitors to website, earning profit based on downloads from google play store, general Earning profit from users etc. The main features of our software system are- This system comes in handy when people are stranded and can't find fuel pumps, Online Delivery, Share Location, Anytime Anywhere Fuel Delivery, Online Payment/Account Section, Gas Station Fuel and Fuel Pricing, providing various offers to visitors and general users on the website etc.

2.2 Related Works

This paper discusses the fuel distribution system with internal gas diffusion of the machine using projection algorithm. That is, through the projection algorithm, the nonlinear observer proposes a detailed online fuel distribution system (FDS). Compared with dynamic state and second order sliding mode (SOSM) observer on RT-LAB platform, it shows better performance and robustness in real-time estimation [1].

In this paper, an Android platform has been developed where a safe and reliable online fuel delivery service can be provided if a vehicle driver is standing in the middle of the road due to lack of fuel. Users can locate the nearest petrol pump and order by activating their mobile's GPS. Also here are some popular machine learning models like K-Nearest Neighbour (KNN) algorithm to find the nearest petrol pump [2].

In this paper online real time health management (HM) monitoring of home and abroad health management (HM) algorithms to deal with online aerial fuel system (AFS) problems. A number of models such as BN health model, Global Variable Elimination (GVE) and Mathematical Circuit (AC) health model algorithm are used here. Simulations show that the arithmetic circuit (AC) cannot accurately determine the Bayesian network. But Health Management (HM) can diagnose it correctly [3].

This paper develops a Delivery-FC 'tool' for forecasting fuel consumption for ships and keeping delivery arrangements. Some series like WUMTIA and GAWN have been used to predict fuel

consumption with inputs like ship size, cruise, maximum speed, constant power, sea roughness. Also, the average weather is taken from the BMT ARGOSS wave climate online database [4].

This paper describes a delivery system that uses a process to reduce fuel consumption. This process has been used only for methanol and ammonia fuels. This dual mode usage is very fuel efficient and fuel can be saved for the future [5].

This website shows that an application-based software has been developed on the online fuel delivery system. This application-based software is mainly developed using Flutter. Fuel order, fuel availability, location sharing is available through this application-based software [6].

Figure 2.2: Related website of online fuel delivery app

This website shows that a web-based software has been developed with online fuel delivery system. The name of the website is "On-Demand Fuel Delivery Apps Development Explained". Through this website fuel order, fuel availability, location share, fuel is delivered by taking the company's own fuel vehicle and fuel is given to vehicles that run out of fuel [7].

Figure 2.2: Related website of on-demand fuel delivery apps

This website shows that a web-based software has been developed with online fuel delivery system. The name of the website is "Fuel Delivery Management System". This web-based software is mainly developed using PHP. Fuel order, fuel availability, location share is provided through this website [8].
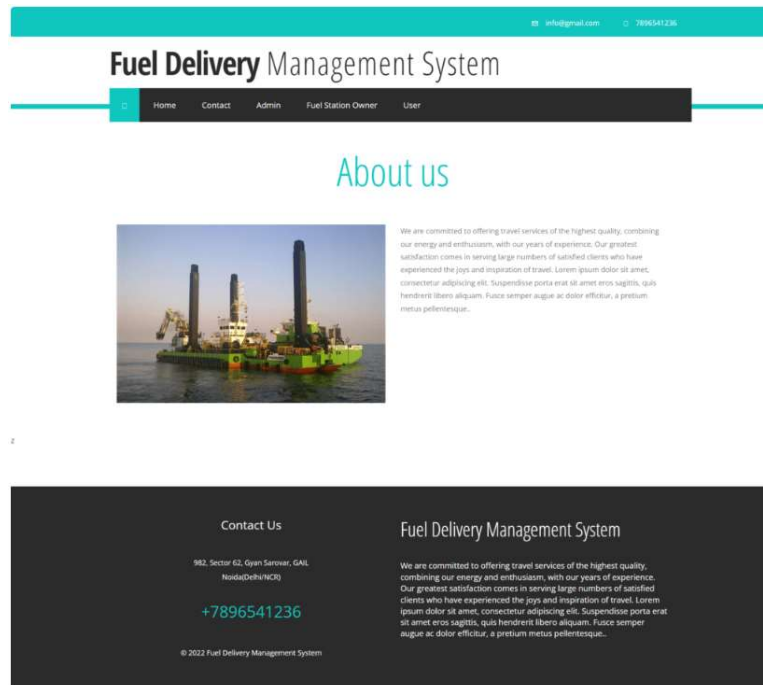
Figure 2.2: Related website of fuel delivery management system

This website shows that a web-based software has been developed with online fuel delivery system. The name of the website is "Fuel Delivery App Development: Prerequisites, Features, And Cost". This web-based software is mainly developed by prerequisites, features and cost

analysis. Fuel order, fuel availability, cost analysis, location share is provided through this website [9].

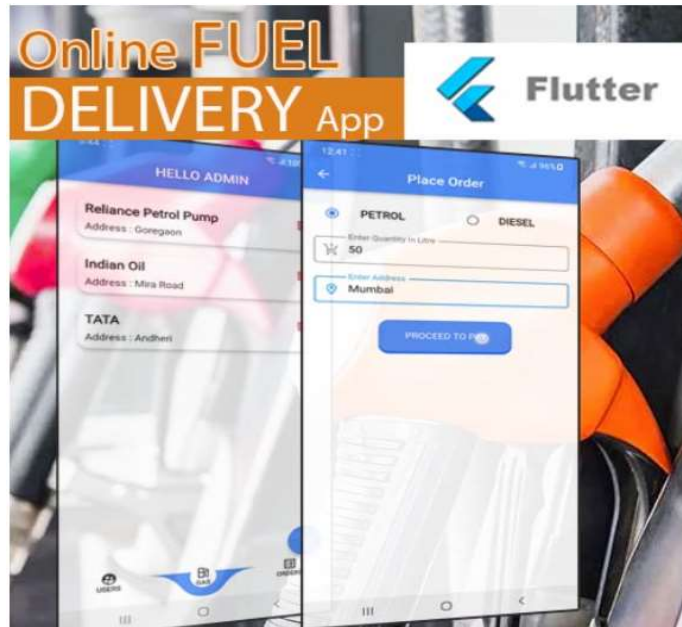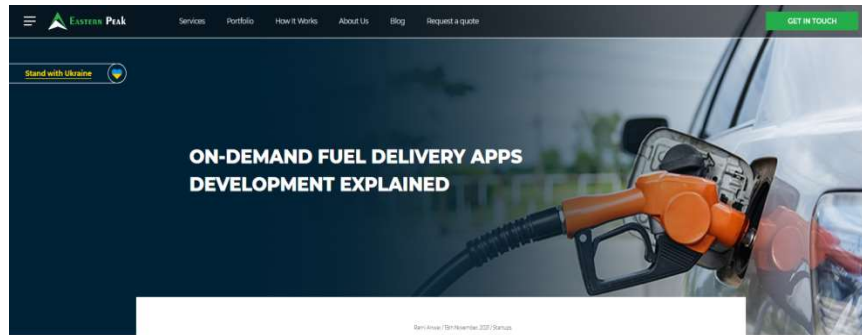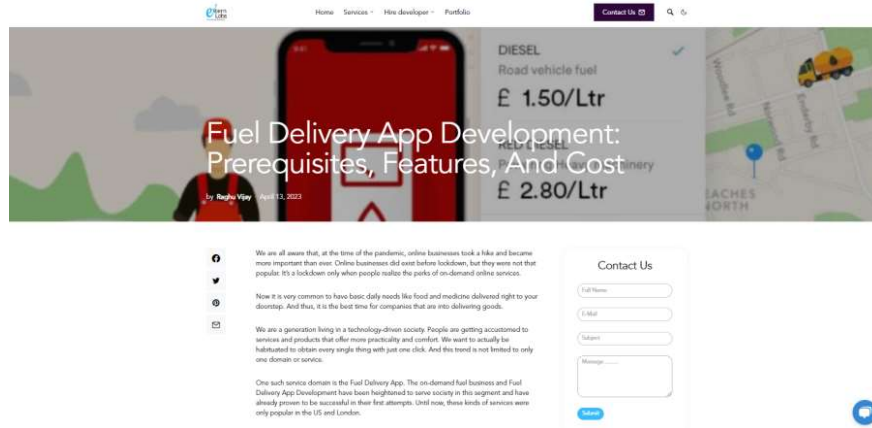
Figure 2.2: Related website of fuel delivery app

This website shows that a web-based software has been developed with online fuel delivery system. The name of the website is "On-Demand Fuel Delivery Apps Development Explained". This web-based software is basically made by handling emergencies, Track Fuel Delivery, Time-Saving, Order Fuel Anytime/Anywhere Instantly, Low Maintenance analysis. Fuel Delivery, Fuel Order, Purchase of fuel, Location Share through this website [10].

This website shows that a web-based software has been developed with online fuel delivery system. The name of the website is "On-Demand Fuel Delivery Apps Development Explained". This web-based software is basically created by analysing Instant fuel refill, Scheduled orders, Track Fuel Delivery, Order Fuel Anytime/Anywhere, Low Maintenance. That is, through this website, fuel is provided through Fuel Delivery, Fuel Order, Fuel Kina, Location Share [11].
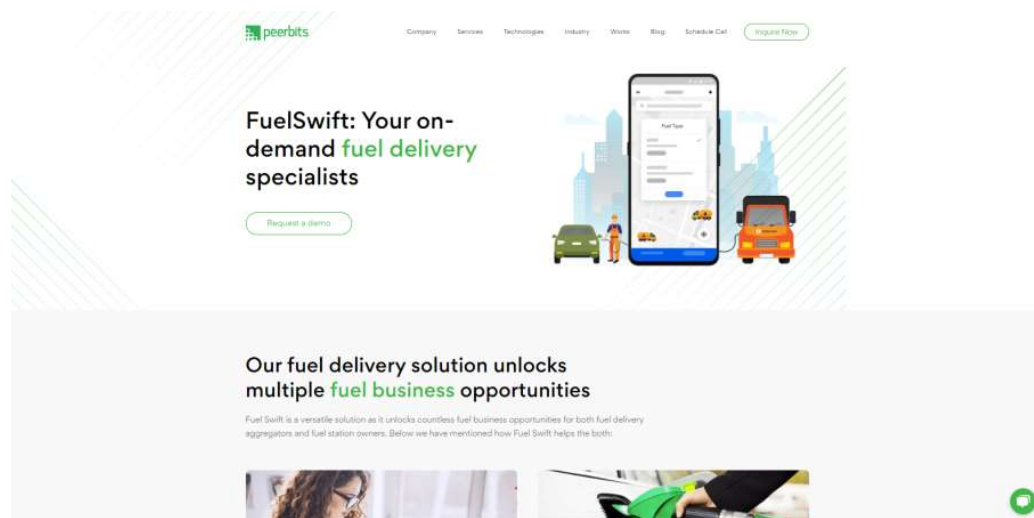
Figure 2.2: Related website of fuelswift

Like the above related websites, our website also has some features. Some of its notable features are online delivery, share location, deliver anywhere, online payment/account section, the website has many sections like visitor, general user, administrator, management section.

2.2.1 Online Fuel Delivery System Development

Currently, the number of vehicles in the country is increasing. But the amount of petrol pumps that are required for the movement of vehicles are not available anywhere. So, it becomes very difficult for the vehicle to move without such petrol pump. Based on such problems, we have developed a software system, which has many petrol pumps under one system or organization This system comes in handy when people are stuck and cannot find a fuel pump, Online Delivery, Share Location, Anytime Anywhere Fuel Delivery, Online Payment/Account Section, Fuel and Fuel Pricing at Gas Stations, Website Visitors and General Giving different offers to users. Although Bangladesh has never produced web-based software or systems like ours, there are several examples of such web-based software and systems in the outside world. Hardware and software are the two sorts of materials needed to construct such a software-based system.

Software: Any framework, operating system, and database utilised in the development of software or systems. There are several languages utilised, including HTML, CSS, JavaScript, and Python. It works with any web browser.

Hardware: A highly configurable computer utilised for system development.

2.2.2 Online Fuel Delivery System Design

Below are some front-end designs of "Online Fuel Delivery System". Here is added the image of the relevant "Online Fuel Delivery System" website in Figure 2.2.2.
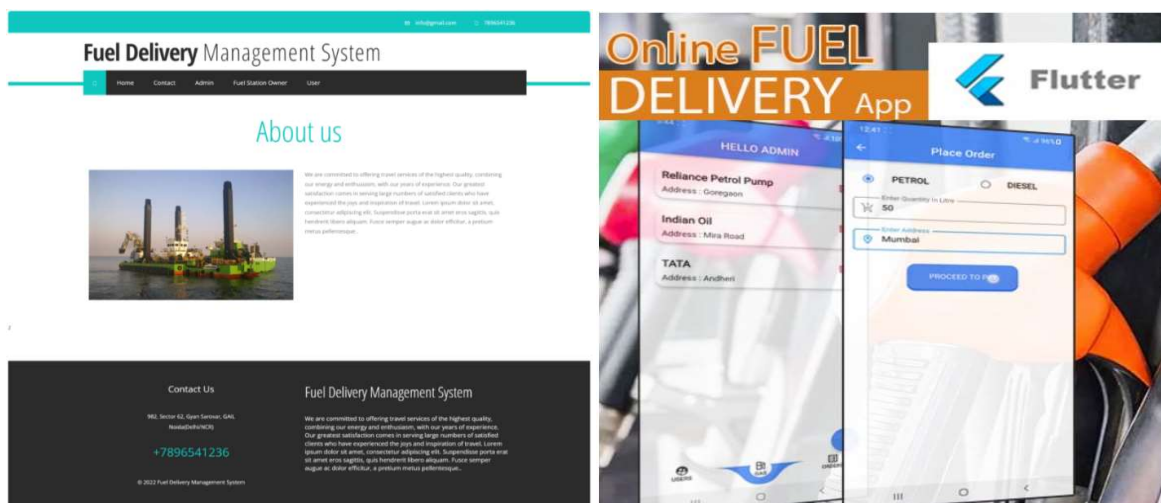
Figure 2.2.2: Relevant Design of Online Fuel Delivery System website

Above some websites like Online Fuel Delivery Apps, On-Demand Fuel Delivery Apps Development Explained, Fuel Delivery Management System, Fuel Delivery App Development: Prerequisites, Features, And Cost, On-Demand Fue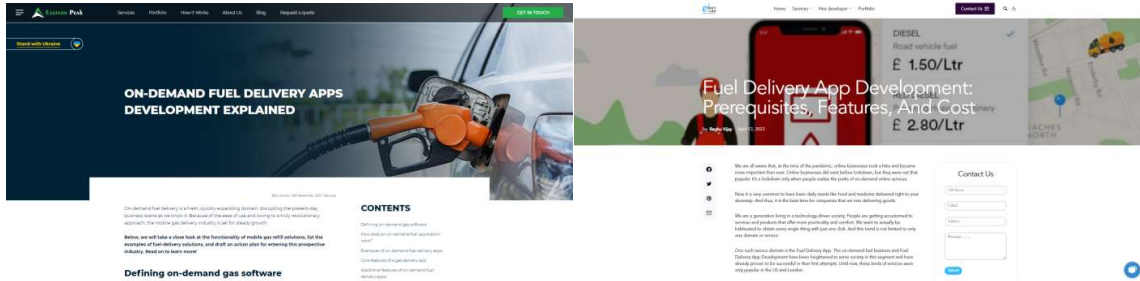l Delivery Apps Development Explained have frontend design, where header Full frontend details of the website are shown including functionality like section, footer section, website body etc.

2.2.3 Online Fuel Delivery System Users

Users of the system i.e., users of "Online Fuel Delivery System" are general public, vehicle drivers, vehicle owners, institutions or organizations. Here users can order fuel online anytime from anywhere. Also, users can go to the gallery of these websites and see all kinds of images, prototypes, read their various blocks, see about the offers through the website and collect them, take all kinds of services.

2.3 Comparative Analysis

People's lives and jobs are becoming more hectic and complicated every day due to the fast advancement of information and communication technologies. Individuals desire to be able to complete tasks at home quickly. So, we have developed a software system to enable online fuel delivery system, like online food delivery system, Darazhome delivery system. The main features of our software system are- This system comes in handy when people are stranded and can't find fuel pumps, Online Delivery, Share Location, Anytime Anywhere Fuel Delivery, Online Payment/Account Section, Gas Station Fuel and Fuel Pricing, providing various offers to visitors and general users on the website etc. Such a web-based software or system like ours has never been developed in Bangladesh but there are such systems abroad as well and such systems are constantly being developed. Countries like UK, China and America have software systems that are more advanced and feature-rich. Other countries' existing fuel delivery system is

developed based on a specific fuel/gas station, But in this system, we can add huge number of fuel stations so that users from anywhere able to order fuel from nearby fuel station.

2.4 Scope of the problem

While developing this software system, we ran into a number of issues. Furthermore, issues with the system will arise later on. For instance, it can be observed that a system component is malfunctioning or that a large number of users is causing the system to load slowly. As a result, users of the online fuel delivery system will decline, online fuel orders will not arrive, and users may lose confidence in our system or software. Due to which the software company has to face a huge loss. So, we always have to be ready to deal with such issues, so that users don't face any kind of problems.

2.5 Challenges

Since our software system is built on a very broad scale, it was very challenging to develop the system. For example, implementing this system when people are stranded and can't find a fuel pump, online delivery, location sharing, payment through online mobile banking, fuel delivery anytime anywhere, the software can centrally manage the fuel and fuel prices at the gas stations, manage the accounts department well, provide various attractive offers to the visitors and general users of the website, etc. To arrange the management committee of the said software so that the entire software can be managed centrally.

CHAPTER 3
REQUEREMENT SPECIFICATION

3.1 Business Process Modelling

A business process model is a representation of one or more business processes that explains how an organization's planning objectives are met via operational procedures. Such a model is still abstract and is dependent on how it is planned to be used. A framework that provides a standardized method for organizing, executing, and managing business processes within a company is the business process management (BPM) lifecycle. BPM consists of five stages: execute, monitor, optimize, model, and design. We provide six essential elements of BPM, based on research in the area of development models: people, culture, information technology, key alignment, administration, and methodologies. This BPM Handbook is organized around these six elements.

3.1.1 Business Process Modelling Notation

A flow chart technique called Business Process Modelling Notation (BPMN) may be used to represent a business process's phases from beginning to end. It is a fundamental component of business process administration and visually depicts the precise organization of business operations and data flows needed to finish a process. Graphical notations and flowcharts serve as the foundation for the BPMN language. The four main groups of BPMN diagram symbols are swim lanes, artefacts, linking objects, and flow objects.

Business Process Modelling Notation (BPMN),Swim lanes, artefacts, linking objects, and flow objects are all shown in this flow chart. There are 8 classes like- User, Fuel Order, Payment, Station Manager, Admin, Super Admin, Sales Manager, Delivery. Additionally, the characteristics and functions of each of these classes vary. This section now includes the figure 3.1.1's Business Process Modelling Notation image.
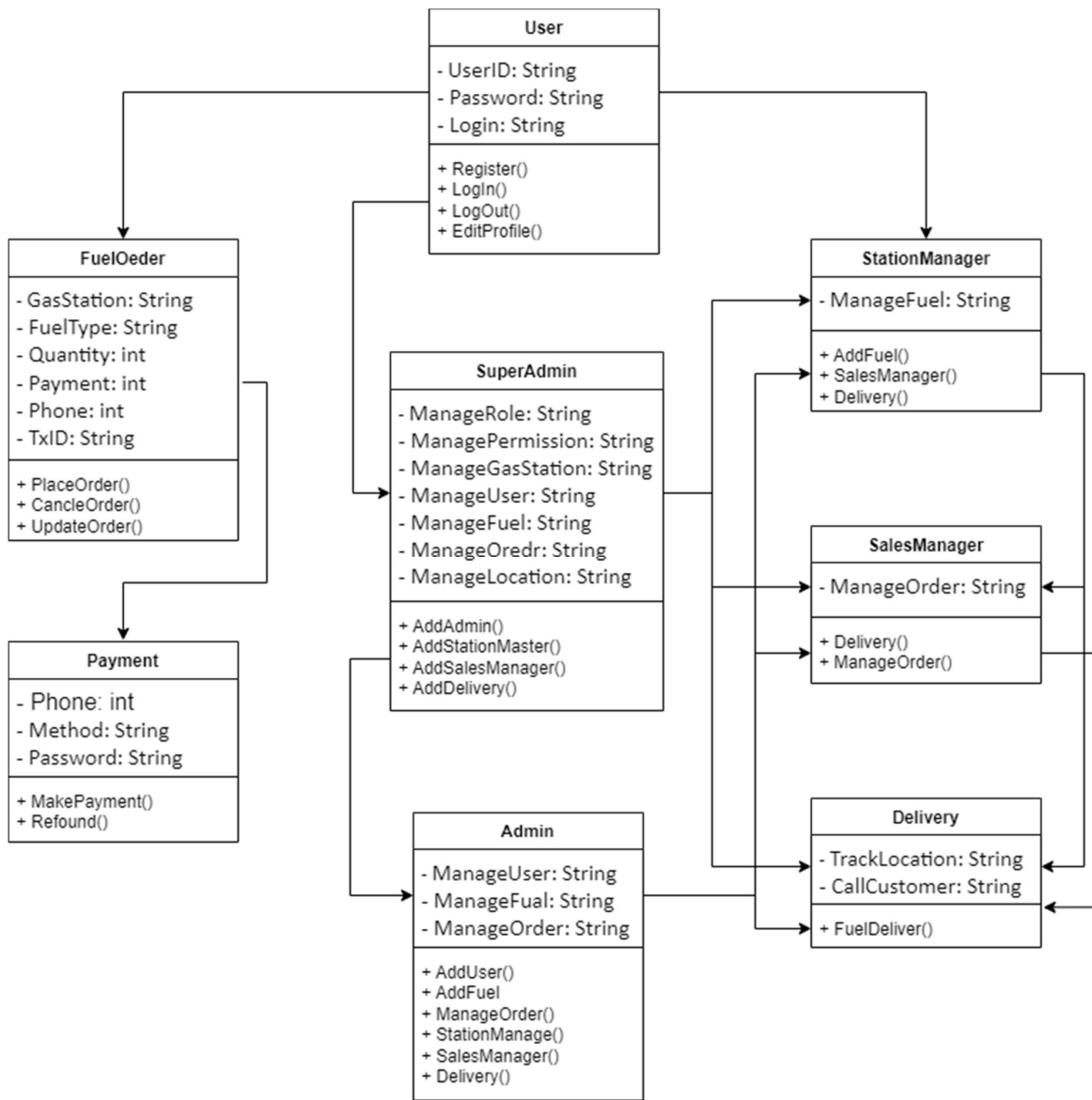
Figure 3.1.1: Diagram of Business Process Modelling Notation

3.1.2 Data Flow Diagram

A system's information flow is mapped using DFD. DFD illustrates the data flow inside a system. Data flow, entity, process, and data storage are the four primary parts of DFD. DFD comes in two flavors: physical and logical. A logic diagram is a theoretical representation of how system information is moved. Moving system information practically is accomplished by creating a physical diagram. The DFD diagram primarily consists of three tiers. DFD at the 0 level, 1 level, and 2 levels.

DFD 0:

Figure 3.1.2: Diagram of Data Flow Diagram 0

The Data Flow Diagram 0 image from figure 3.1.2 has been put here. A context diagram is a DFD at level 0. An overview of the complete system may be found here. This makes it possible to quickly and simply examine the system.

DFD 1:

Figure 3.1.2: Diagram of Data Flow Diagram 1

This is where figure 3.1.2's Data Flow Diagram 1 image has been inserted. Context diagrams are broken down into a little more depth in a level 1 DFD. This will deconstruct the diagram's high-level process and identify its functionalities.

DFD 2:
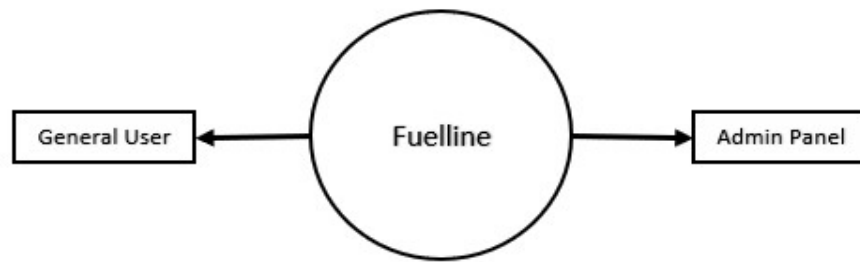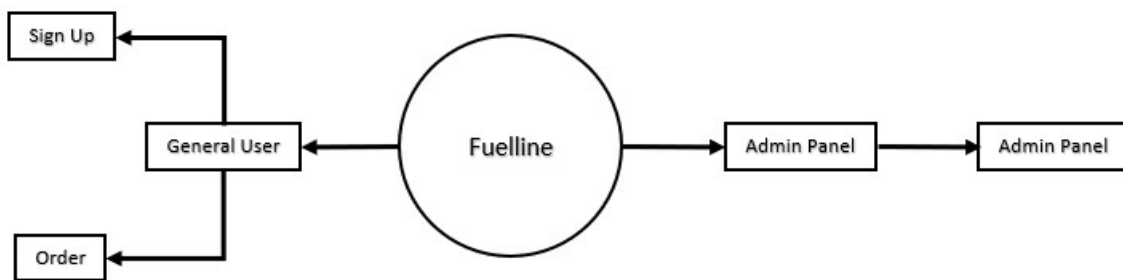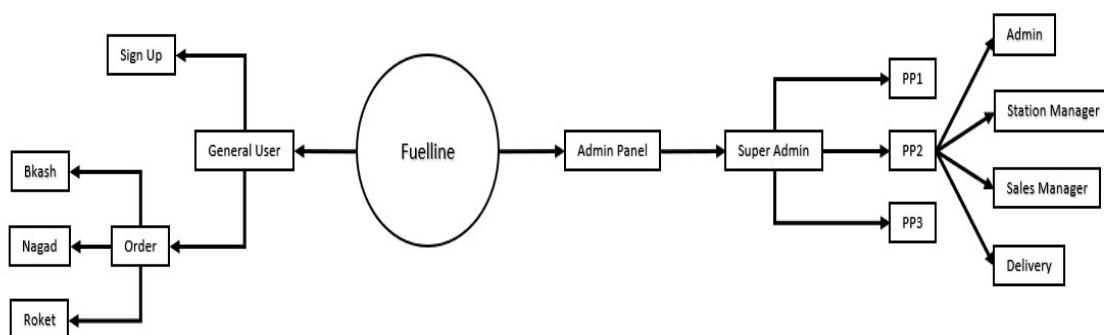
Figure 3.1.2: Diagram of Data Flow Diagram 2

The Data Flow Diagram 2 image from figure 3.1.2 has been put here. Compared to level 1, level 2 DFD is one level deeper. Here is a detailed explanation of how the system works.

3.1.3 Incremental Development Model

The approach of developing software incrementally involves breaking down the needs of the program into smaller components. This process involves slicing a product into many pieces. Module requirements, design, implementation, and testing processes are progressively completed by each module. Every module follows the incremental model of the SDLC.

Increment 1:

Figure 3.1.3: Diagram of Incremental Model 1

Here, the image of Figure 3.1.3's Incremental Model 1 has been included. Following the division of the incremental development model into three sections, an organization has been worked on here. Of all the organizations, only one incremental process has been explored.

Increment 2:
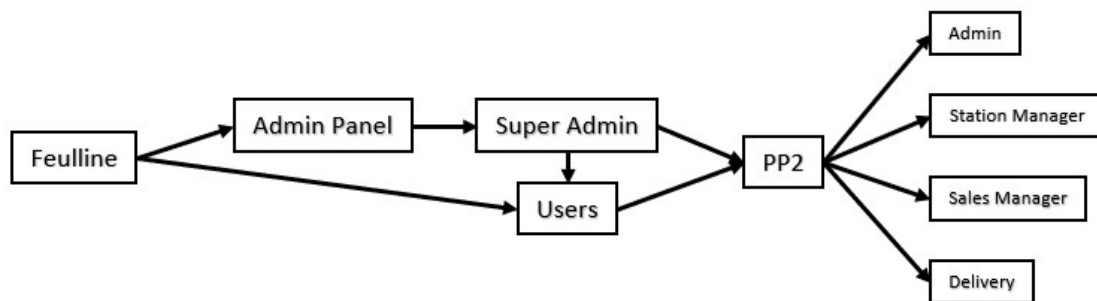
Figure 3.1.3: Diagram of Incremental Model 2

This is where the Incremental Model 2 picture from figure 3.1.3 is located. Here, the second organization—one of the three components of the incremental development model—has been worked on, and just that organization's incremental process—across all organizations—has been mentioned.

Increment 3:
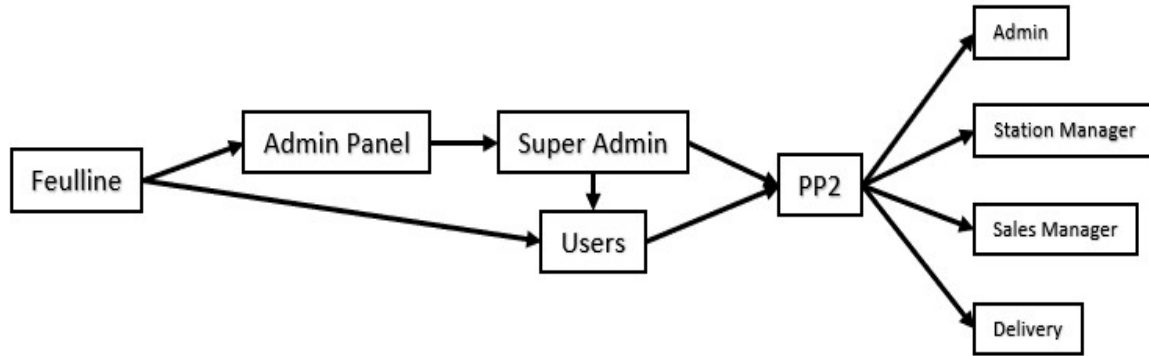
Figure 3.1.3: Diagram of Incremental Model 3
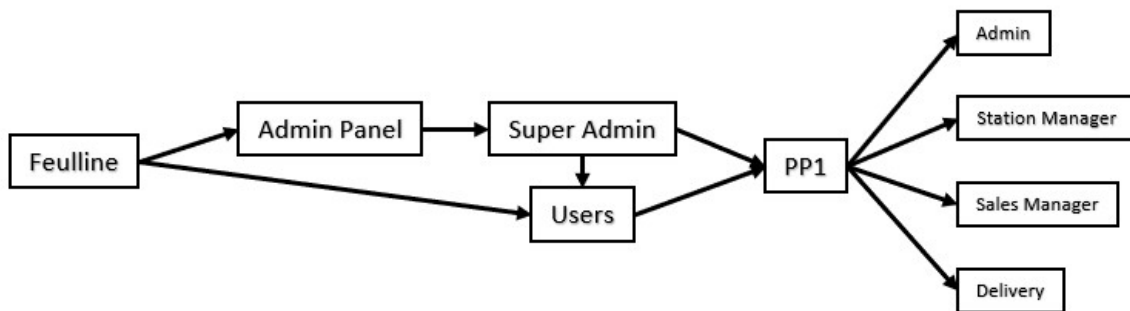
This is where the Incremental Model 3 picture from figure 3.1.3 is located. The third organisation, the final component of the three-part incremental development model, has now been worked on. Out of all the organisations, the incremental process of the third organization—the last one—has been described in length.

3.1.4 Activity Diagram

An activity diagram displays the control flow and activity of a system, much like a flowchart or data flow diagram. Software companies and commercial organizations use activity diagrams mainly to monitor the fulfillment of various software tasks. Flowcharts are another name for activity diagrams.

The Activity Diagram for User image from figure 3.1.4 has been placed here. This is a flowchart for users. After logging in or creating an account, a user will place an order, make a payment, log out of the system, and ultimately the system will terminate.

Users:
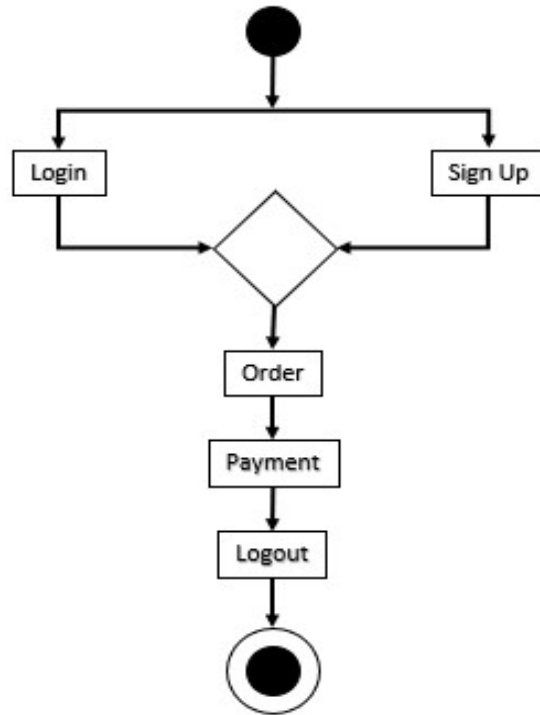
Figure 3.1.4: Diagram of Activity Diagram for Users

Administrator:

This is where figure 3.1.4's Activity Diagram for Administrators image has been inserted. This is a flowchart for an administrator. A super admin logs into the system, manages all petrol pumps, also an admin will be assigned for each petrol pump, who will manage orders, users, fuel. Also station manager, sales manager, fuel manager and order manager will manage everything, then log out and finally the system is done.
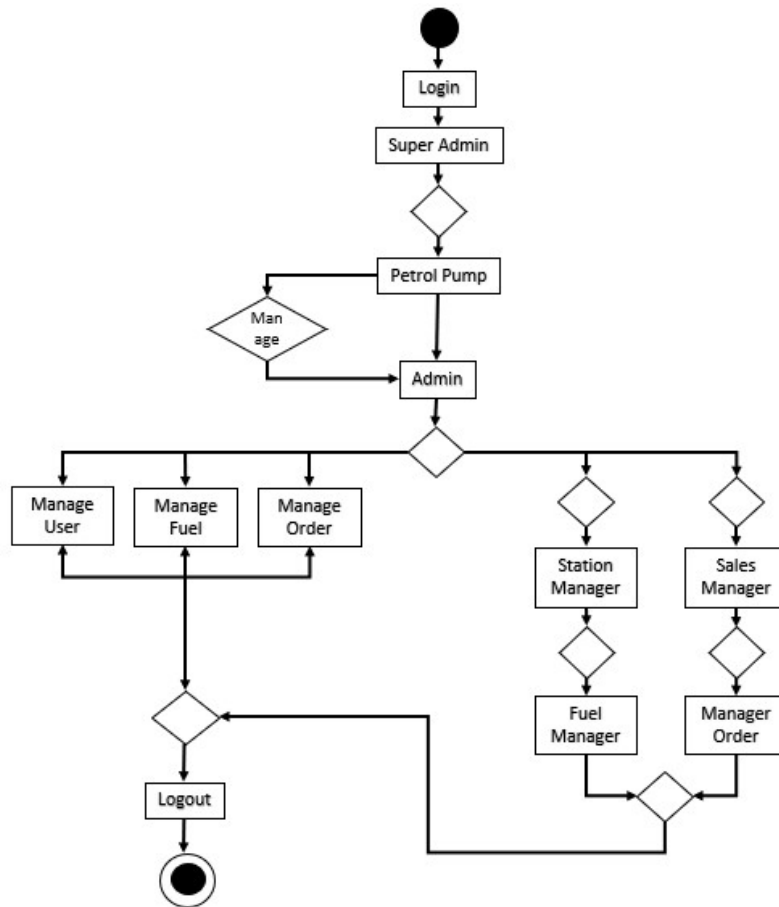
Figure 3.1.4: Diagram of Activity Diagram for Administrators

3.1.5 Sequence Diagram

Sequence diagrams display the control structure between objects as well as the order in which messages are transferred between one or more objects. In other words, it shows the relationship between the things and their sequence of operation. In essence, sequence diagrams show the chronology as it progressively descends from the top of the series of links. Business and software development firms often use these diagrams to record new system needs or procedures.
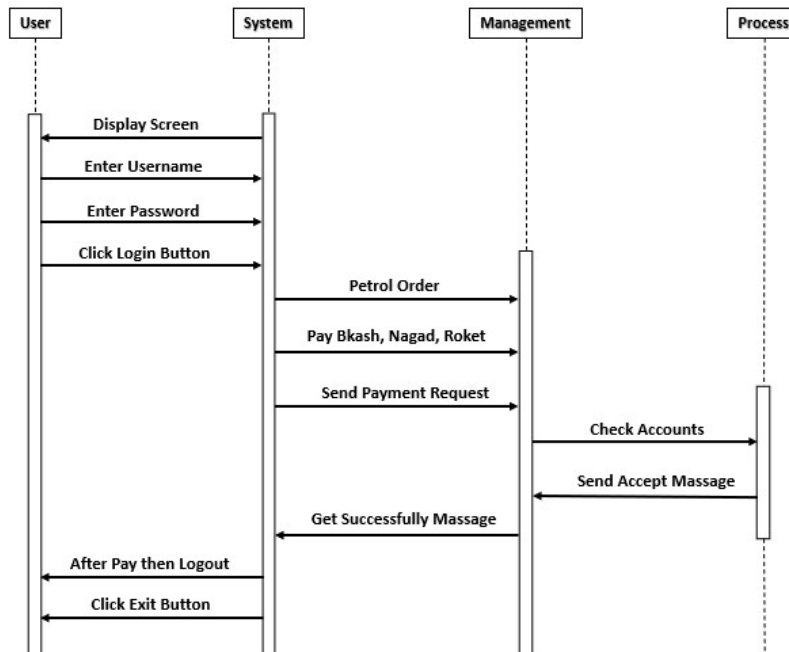
Figure 3.1.5: Diagram of Sequence Diagram

The Sequence Diagram image from figure 3.1.5 has been put here. This is the sequence diagram's flowchart. How a user logs in, goes through all the steps, and then leaves the system is shown in a flowchart. The first four activities—user, system, management, and process—have been identified in this instance. After completing the tasks outlined in the system, management, and process flowchart, the user will exit the system.

3.2 Requirement Collection and Analysis

Considerations for a project's creation are many. Numerous factors affect how our project turns out in the end, including how well customers use it, whether there are any bugs for them to deal with, how well the management team manages it, how successfully the project can be operated by other businesses or individuals engaged, how well the remaining functional problems can be fixed, and what specifications are required to run our program. If they are sufficient, etc.

3.2.1 Hardware Requirements

The specifications of the machine we utilize to implement our system are essentially our hardware requirements. In addition, suggestions for criteria and the minimal requirements for the computer to execute the system in the Laravel 8 framework have been provided.

MINIMUM:

OS: Windows 7,8,10

Processor: Minimum Pentium Processor

Memory: 4 GB RAM

Graphics: 1GB GRAPHICS

DirectX: Version 11

Storage: 500 GB available space

RECOMMENDED:

OS: Windows 10

Processor: I5

Memory: 8 GB RAM

Graphics: 4GB or above GRAPHICS

DirectX: Version 12

Storage: 500 GB available space

In addition to the items listed above, a desktop computer, phone, and printer are needed. Using a desktop computer is necessary to administer the program. If a person or driver runs out of fuel, they can immediately order fuel through our app. After ordering, petrol will be dispatched from the nearest petrol pump through the delivery boy. Besides, payment will be made through online mobile banking.

3.2.2 Software Requirements

The specifications of the software we utilized for our project, the language description in which the system was created, the language's database, and the name of the operating system the language will operate on are all considered to be part of the software requirements. an operating system required for Windows to function. An operating system is necessary for a system to function correctly. The operating system in this case is Microsoft Windows XP.

Used for this project:

Framework: Laravel8

Language: PHP

Design: Html, CSS, JavaScript, Bootstrap

Operating System: windows 11

Web Browser: Chrome

Processor: CoreI5

HDD: 500GB

SSD: 120GB

RAM: 8GB

Database for LaravelFramework:Mysql

Oracle Database:

Operating System: Windows 2000 / NT / XP

Recommended processor: I5

Recommended RAM: 128MB

For FAT file system:

Oracle Home Drive: 861 MB

System drive: 51 MB

For NTFS file system:

Oracle Home Drive: 336 MB

System drive: 51 MB

Web browser (if using manager web site)

Microsoft Internet Explorer 5.0 or higher

Laravel Framework:

Operating System

Windows 2000 Professional

Windows 2000 Server

Windows XP Professional

Windows NT 4.0

Windows Millennium Edition (I)

Windows 98

3.2.3 Feasibility Analysis

Our system may be used as a web-based software application that has been digitalized. This
will enable this web-based, digital system to function technically, financially, and
operationally.

Economic Feasibility:

Our digitalized web-based software system is integrated with all petrol pumps. Earn profit from online delivery with online fuel delivery system software, earn profit from fuel delivery anywhere, earn from online payment/account segment, earn profit based on website visitors, earn profit based on downloads. The entire software system is centrally monitored, such as the Google Play Store, earning profits from common users, etc. A software development life cycle model or Gantt chart may provide a precise model blueprint that a project can adhere to, which can expedite system establishment and save costs and time.

Technical Feasibility:

Our system is fully digitized web-based software, where all petrol pumps are digital and online based on specialized technology. As a result, the entire petrol pump system of Bangladesh will need a technology touch, which will help Bangladesh reach its target of 2041 and make it digital. That is, it is technically very convenient.

Operational Feasibility:

As our system is fully digitized web-based software, all the petrol pumps are digital, can communicate online very easily and beautifully, can interact, all the functionality will work beautifully. Consequently, any individual, motorist, or group may place an online order at any time and from any location for the closest gas stations, depending on their needs. Thus, it is technically feasible.

3.3 Use Case Diagram and Description

A high-level function and its scope are described in a use-case diagram. Use-case diagrams illustrate the relationships between the various participants in the system. Put otherwise, the use case diagram basically looks at the actors' interactions with the system. This is the Use Case Diagram picture from Figure 3.3.
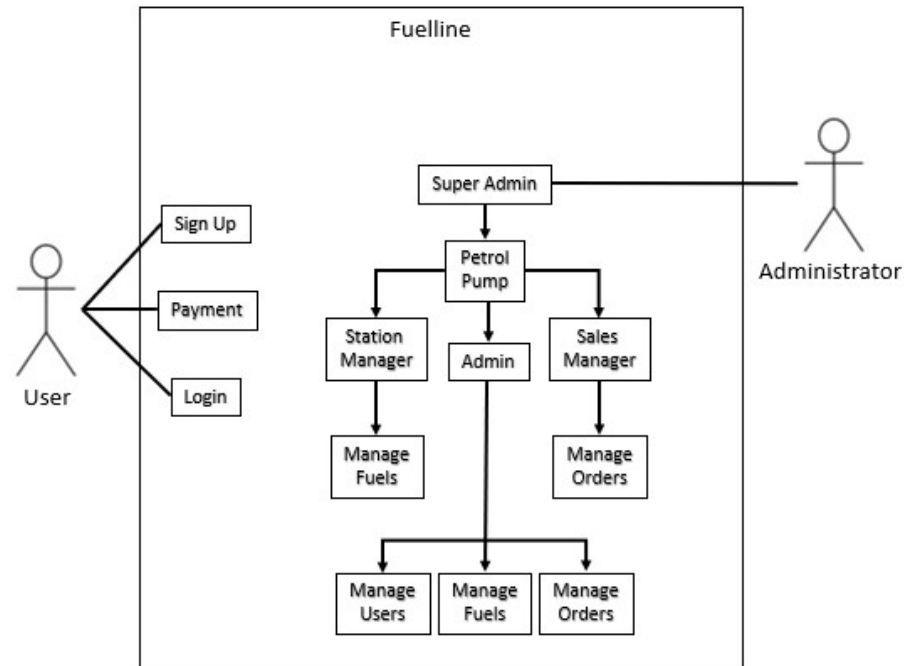
Figure 3.3: Diagram of Use Case Diagram

Use case: Super Admin

Action: Administrator

Type: Secondary and Essential

Pre-condition: Petrol Pump

Post-condition: Administrator

Use case: Admin

Action: Administrator

Type: Secondary and Essential

Pre-condition: Manage Users, Manage Fuels, Manage Orders.

Post-condition: Petrol Pump

Use case: Payment

Action: User

Type: Primary and Essential

Pre-condition: None

Post-condition: User

3.4 Logical Data Model

A realistic description of the link between the resources, actions, and anticipated effects of a program might be found in a logic model. Logic models succinctly and plainly illustrate how intercessions affect behaviour and achieve an objective. Conversely, a logical data model might be a non-database demonstration that explains the topics and relationships around which an organization needs to collect information. Entity-relationship (E-R), dimensional, and relational data models are the three main categories of data models. Additionally, there are a few others like object-oriented, multi-value, network, hierarchical, and others that are not often used. Logical data modelling also serves to describe the characteristics associated with a data element. An example of a logical data model would be to identify the kind of data component—for example, an integer account number or a string account name.

3.5 Design Requirement

Our website's diagram section will be finished before the design section takes over. There, we'll talk about visual design, backend design, and frontend design. The above graphic also discusses the following topics: activity diagram, sequence diagram, use case diagram and description, data flow diagram, business process modelling, incremental development model, and visual flow of the diagram.

CHAPTER 4

DESIGN SPECIFICATION

4.1 Front-end Design

When a person visits a website, they interact or see the front end of the page. The whole appearance and feel of an online experience is the responsibility of the website's front end. Considering that the proverb "First impressions are the best" or "First impressions last the longest" states as much. A user's initial impression of a website will thus be favourable if the frontend design is attractive. Several programming languages are used in frontend design to create the HTML, CSS, and presentational JavaScript code that go into a website's user interface. The image of the "Online Fuel Delivery System" Welcome Page's front-end design, seen in figure 4.1, has been placed here.
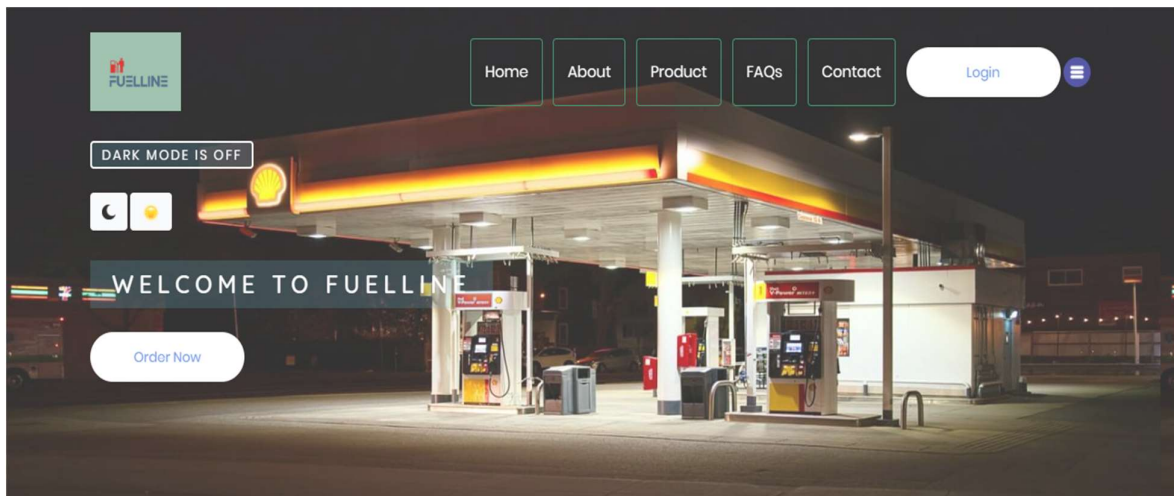
Figure 4.1: Front-end Design of Online Fuel Delivery System Welcome Page

This is how our created system's login page looks on the front end. We created the user interface for this website using the frontend programming languages of HTML, CSS, and presentational JavaScript.

Figure 4.1: Front-end Design of Admin LoginSide Online Fuel Delivery System

Figure 4.1: Front-end Design of Admin Dashboard Side Online Fuel Delivery System

Figure 4.1: Front-end Design of Admin Side Customers Online Fuel Delivery System

Figure 4.1: Front-end Design of Admin Side Gas Station Online Fuel Delivery System
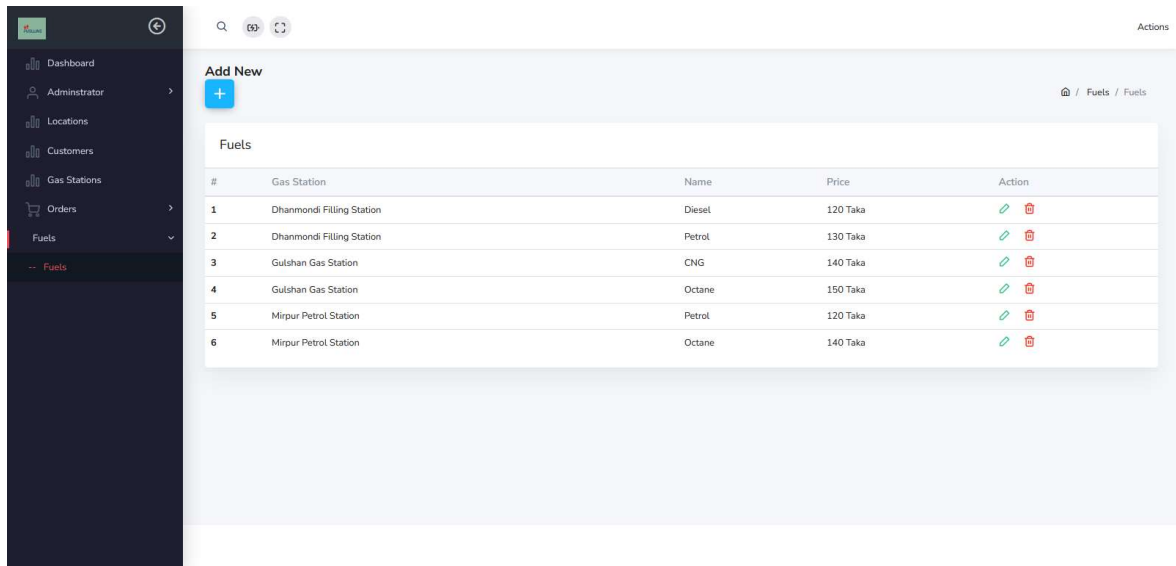
Figure 4.1: Front-end Design of Admin Fuel Add Side Online Fuel Delivery System
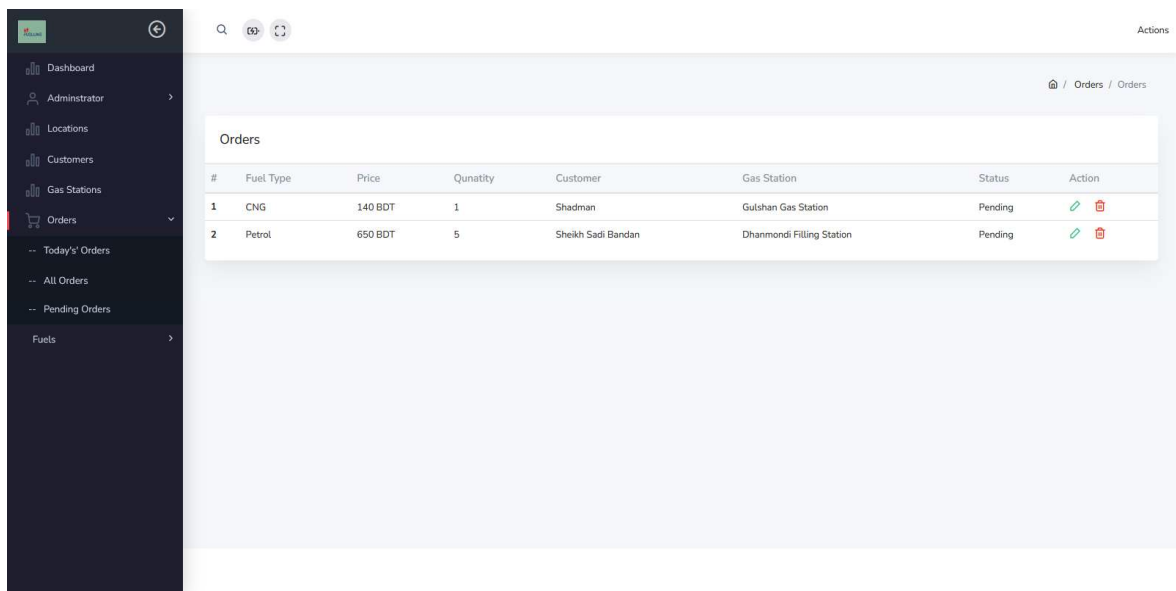
Figure 4.1: Front-end Design of Admin Orders Side Online Fuel Delivery System
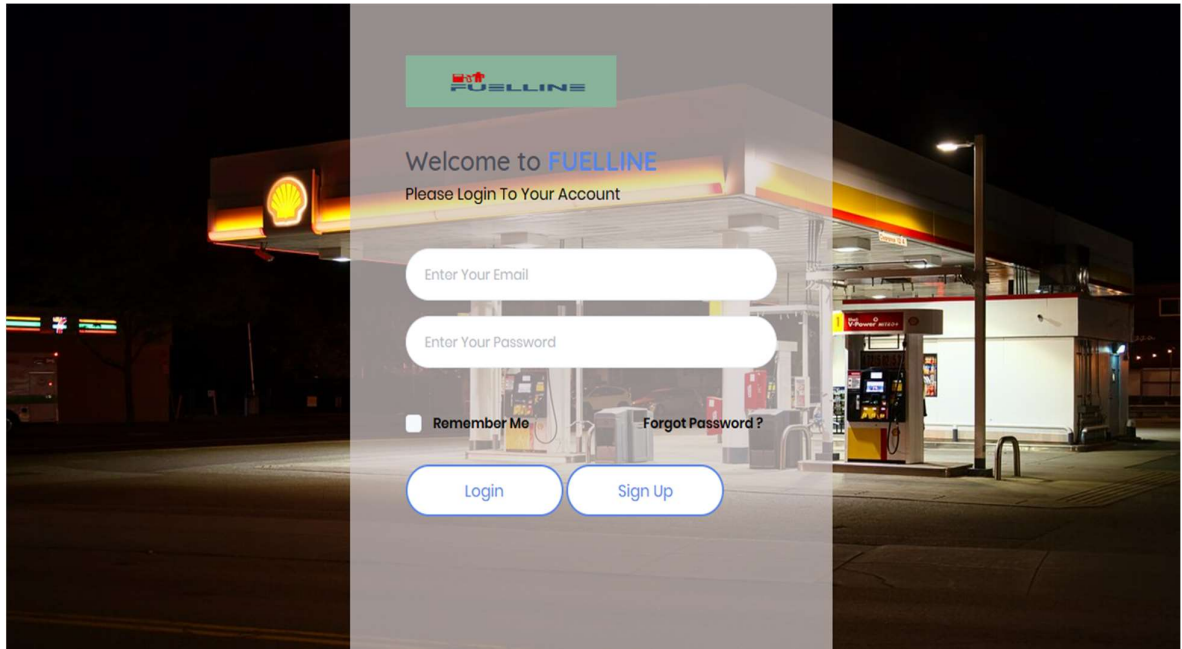
Figure 4.1: Front-end Design of Customer Login Side Online Fuel Delivery System
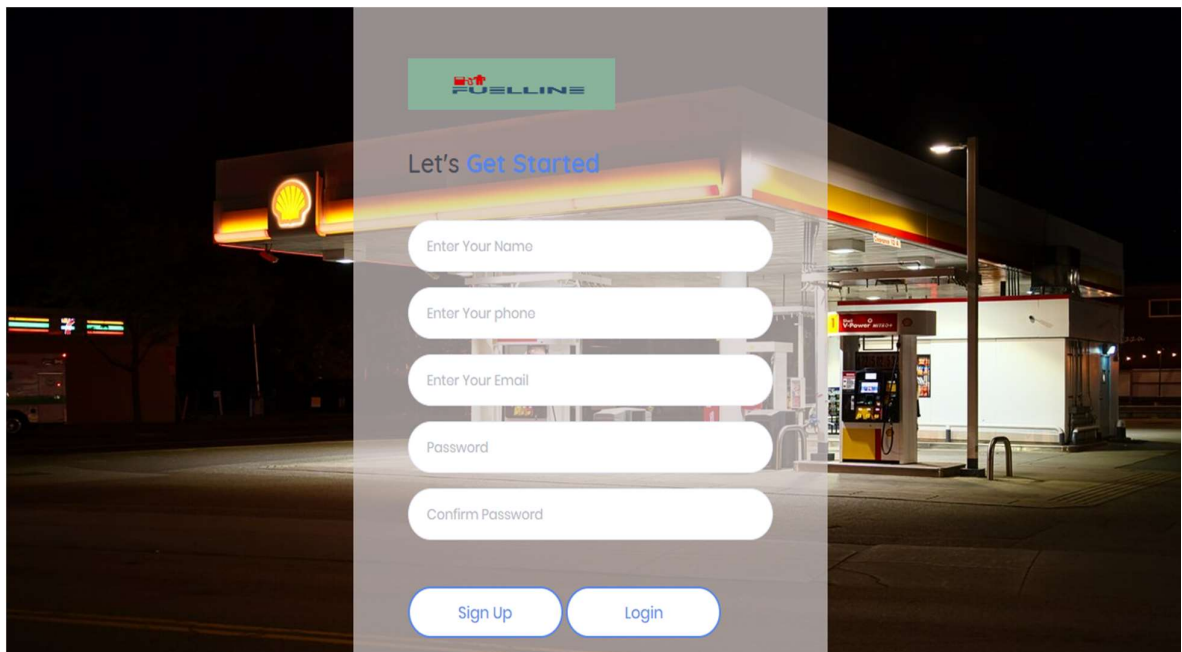
Figure 4.1: Front-end Design of Customer Fuel RegistrationSide Online Fuel Delivery System

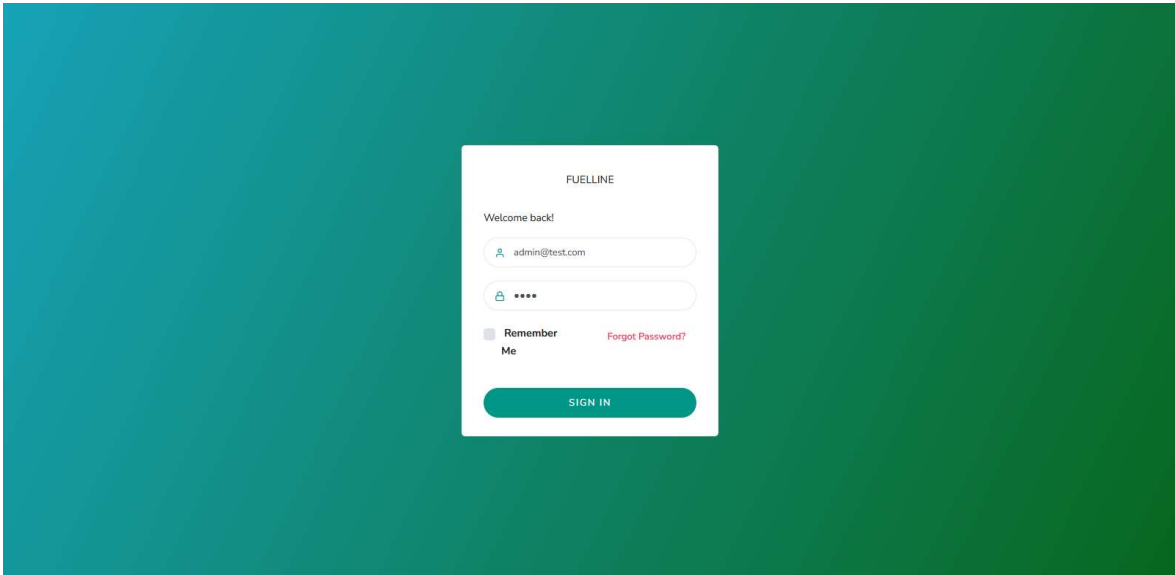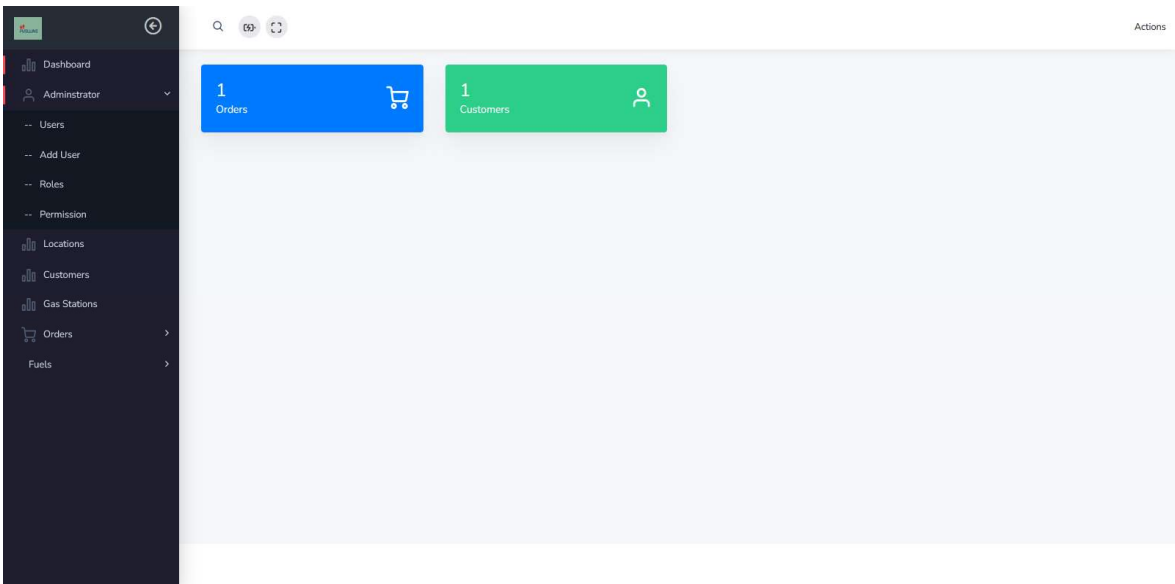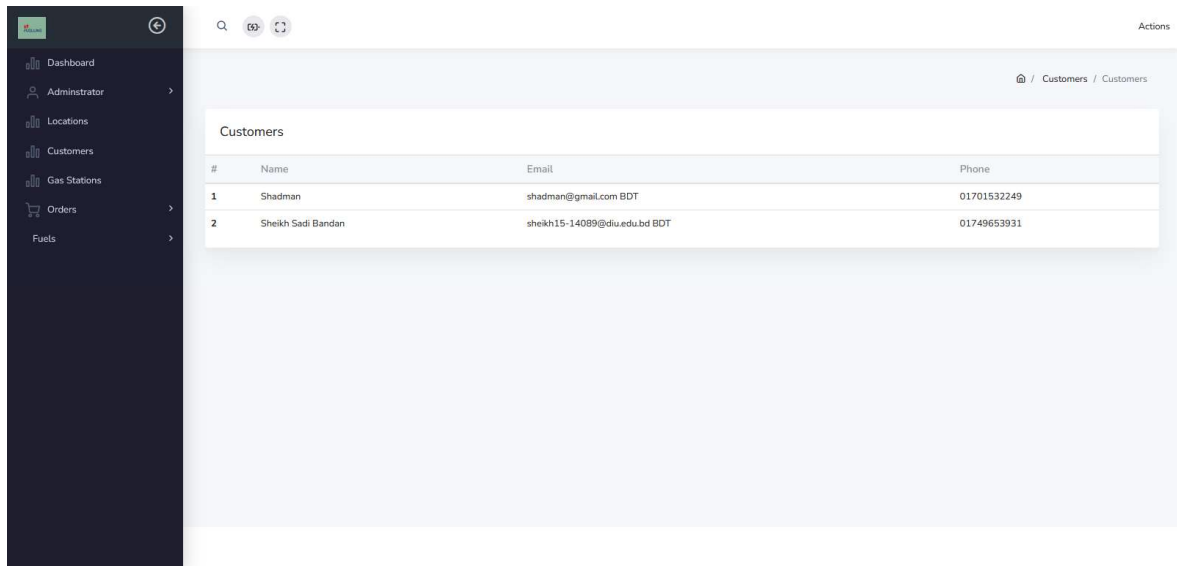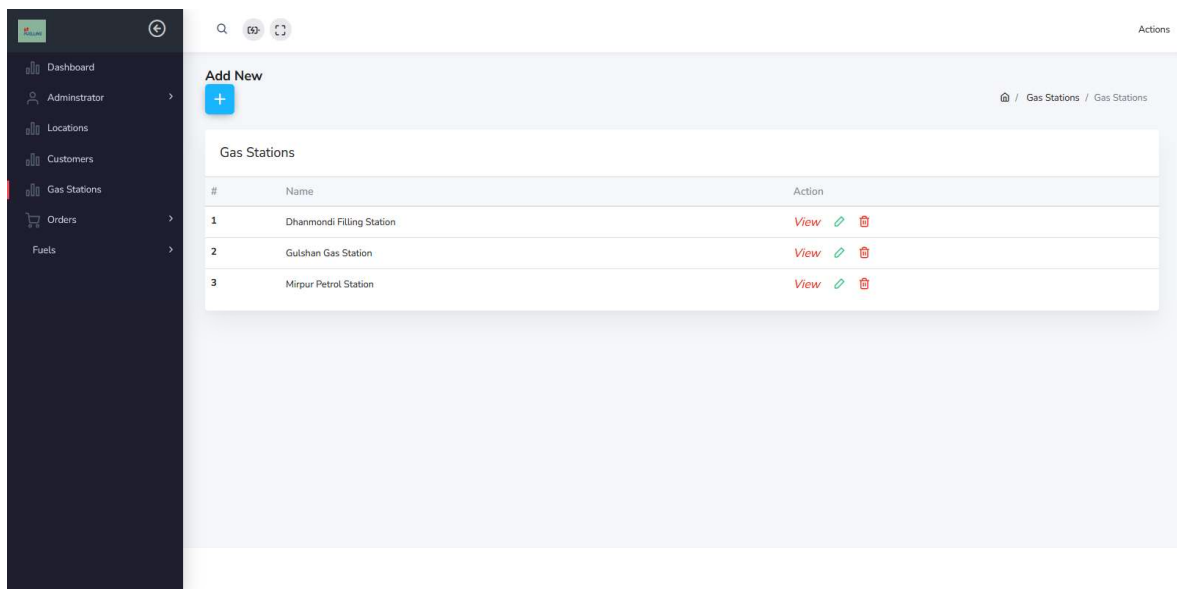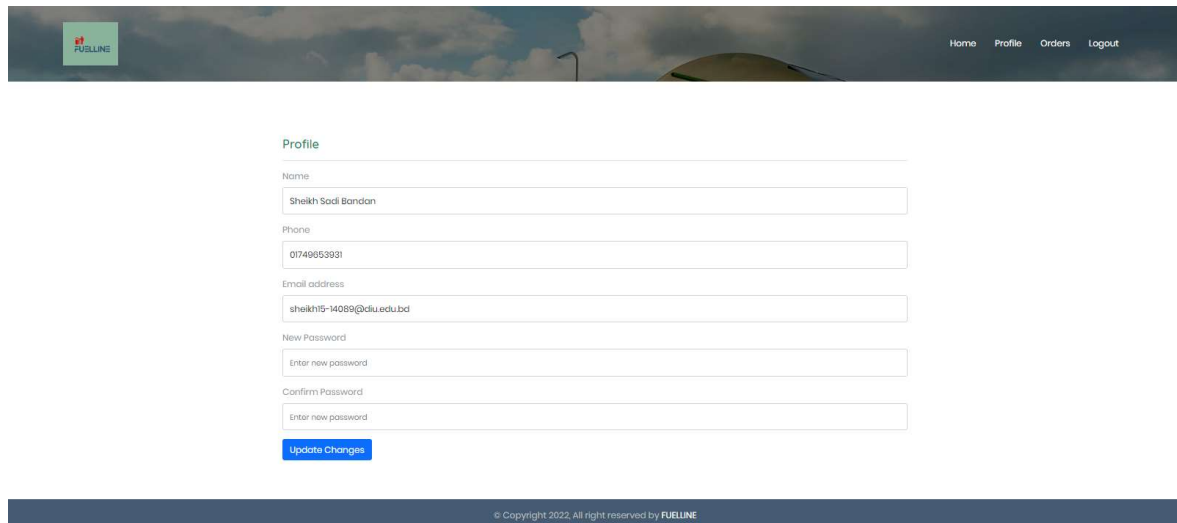Figure 4.1: Front-end Design of Customer Profile Side Online Fuel Delivery System
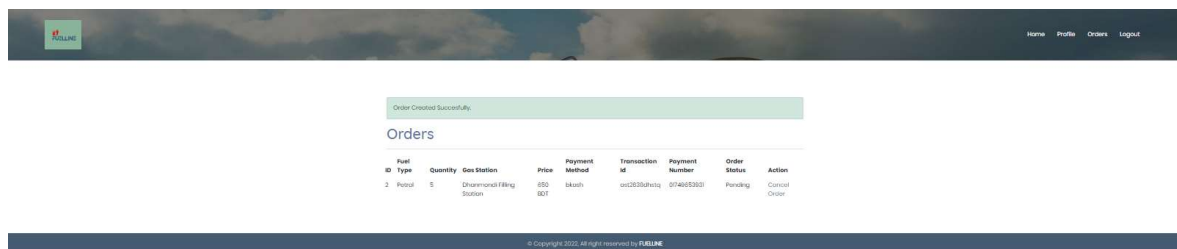
Figure 4.1: Front-end Design of Customer Order Side Online Fuel Delivery System

4.2 Back-end Design

A workflow is a series of operations used to process a given collection of data. Every kind of company and industry has workflows. A process is generated whenever data is transferred between people, systems, or both. The routes that explain how anything gets from being undone to done, or from raw to processed, are called workflows.

4.3 Interaction Design and User Experience (UX)

When a developer integrates a new product into the user experience, this is known as user experience design. In other words, changing how a developer engages with a new product. Additionally, interface design involves the developer immediately using a product to provide a positive developer experience. In short, interaction design is part of UX design. The goal of interaction designers is to enhance the user's interaction with a product by concentrating on that specific instant. In other words, user experience and interface design are not interchangeable.

4.4 Implementation Requirements

Our website's implementation phase will begin when the design is finished. We will talk about what materials and tools are required to develop a website, as well as the languages that will be used for the front end and back end, the framework that will be used, and the database that will be utilized. The testing phase happens after the implementation. The testing portion and the testing report that are described are completed using whatever browser.

4.5 Output

A few images of the "Online Fuel Delivery System" front-end design are shown below. Figure 4.5 now includes a dashboard. This is our system's overall output. The system's frontend design is shown in the output.
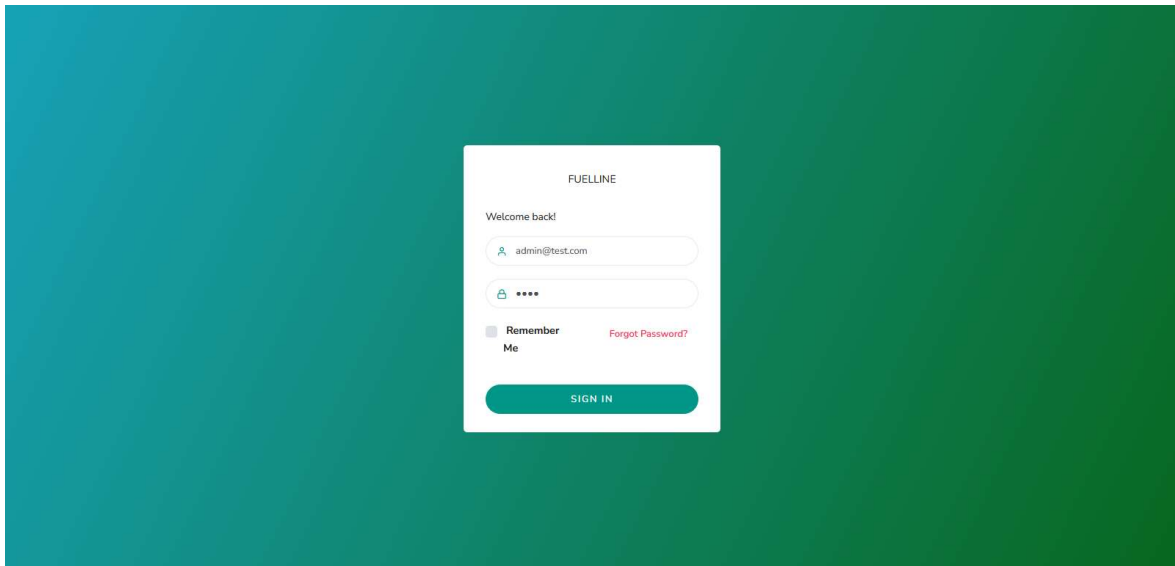
Figure 4.5: Front-end Design of Fuelline Admin Login Panel

The admin login panel is seen here. The system may be managed by an administrator. He knows how to use every system. He is able to assign employees, managers, assistant managers, jobbers, etc.
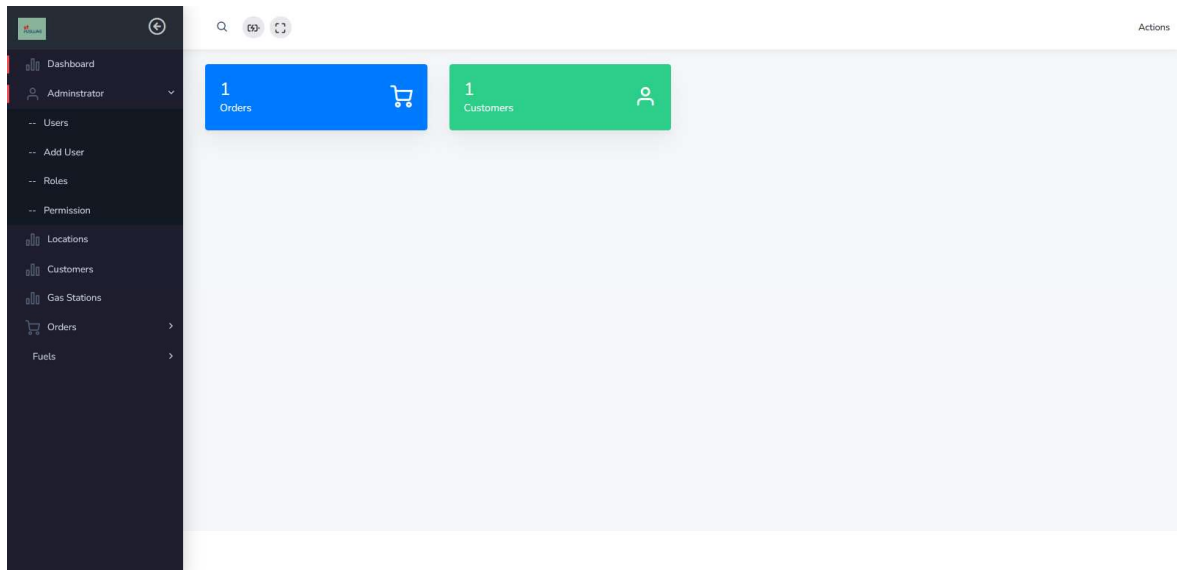
Figure 4.5: Front-end Design of Fuelline Dashboard

Here is all "Online Fuel Delivery System" dashboard. Admin can operate this.
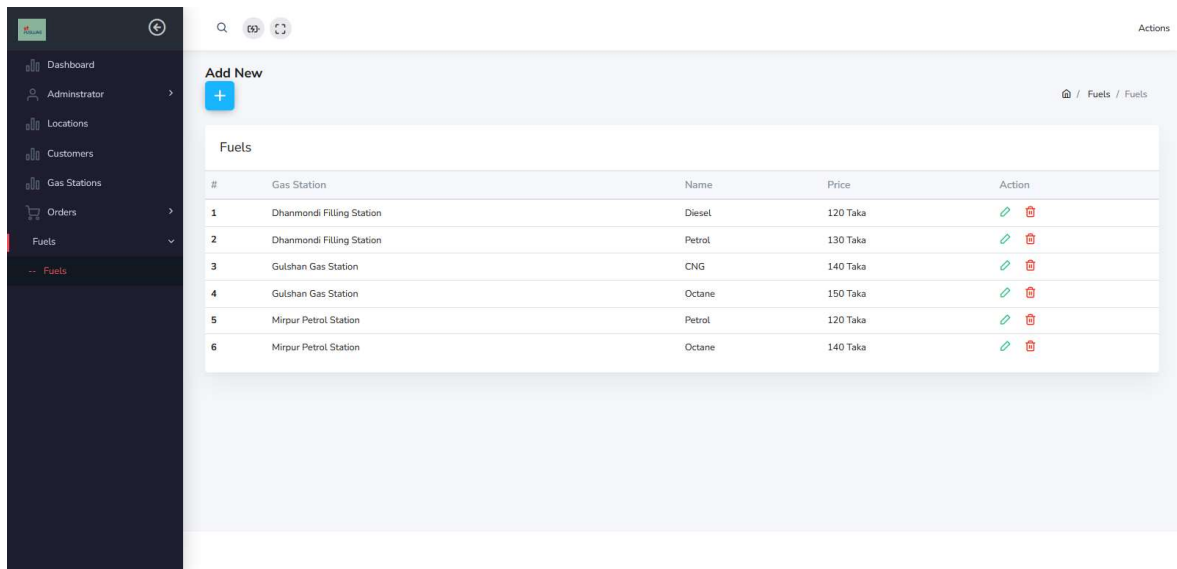
Figure 4.5: Front-end Design ofFuellineAdd Fuel

The manager dashboard is seen here. A manager is only permitted to use the one gas pump that the administrator assigned to them.

CHAPTER 5
IMPLEMENTATION AND TESTING

5.1 Implementation of Database

In the backend, we made use of the Laravel 8 framework and an Oracledatabase. NT, Windows 2000, and Windows XP are the running systems. Additionally, I3 and I5 CPUs are given as suggestions. The recommended RAM is 128 MB. 51 MB system drive and 861 MB FAT file system are utilized on the Oracle home drive. The 336 MB Oracle home drive for the NTFS file system and the 51 MB system drive are utilized for online browsing, with Mozilla Firefox, Microsoft Internet Explorer, and Chrome being the browsers of choice.

5.2 Implementation of Front-end Design

When implementing software, we utilize distinct programming languages for front-end and back-end design. For front-end implementation, we utilized HTML, CSS, and the Bootstrap language; for back-end implementation, we used PHP and JavaScript. The Laravel framework has been utilized across the website. We may also utilize Windows XP Home Edition, Windows XP Professional, Windows 2000 Professional, Windows 2000 Server, and Windows 2000 Advanced Server as our operating system.

5.2.1 Procedures

We had to conduct extensive research on this concept before we could begin working on the project. Following a variety of analyses, we examined the viability of this concept's survival in the future as well as any obstacles or difficulties it might encounter. We created the prototype once the feasibility analysis was successful. We oversee the execution of concepts after designing prototypes. First, the frontend design portion is implemented using the HTML, CSS, and Bootstrap languages. We put the backend design component into practice after the frontend portion is finished. The backend design portion is implemented using PHP and JavaScript. In addition, Laravel was our framework of choice. The system is then connected to the database after the frontend and backend are finished. Oracle database was utilized in this instance. Our startup is complete once the database is linked. Following completion of all preliminary work, testing is conducted to ensure that the preliminary work is successful.

5.2.2 Detailed System Description

The web-based Online Fuel Delivery System functions as an entity in its own right. Here, every gasoline pump will be linked to a single piece of software. Our online gasoline delivery software system's primary characteristics are – This system effectively rescues people when they are stuck and cannot find the fuel pump. Online based fuel delivery. Finding and delivering fuel to stranded people through share location. Helping stranded people by providing fuel anytime anywhere. After placing fuel order online, payment should be done in online payment/account section. Determining fuel quantity and fuel prices centrally at gas stations. Attracting visitors and general users to the website with various offers. Lastly, central management software monitors the function of every fuel pump and software system. In order to guarantee that all administrators and regular users can operate the program correctly. keeping an eye on all online and offline payment activities in the accounts department to ensure ethical accounting. The last and main point is that this system can effectively ensure the rescue of people when they are stuck and cannot find the fuel pump. That is, through this we share location for communication, online delivery, fuel delivery anywhere, online payment, website visitors and general users and tried to cover the account management sections. Some things are directly related to this system. Example: User, Fuel Order, Payment, Station Manager, Admin, Super Admin, Sales Manager and Delivery. The function of each is analysed below.

User:

Users are our main target in this system. Users will understand how our system or software works by registering or logging into the system. When a user can fully understand the system easily, then a user can use the system properly. And the company's profit will come through the users.

Fuel Order:

A user will order fuel. User will be able to order his/her desired fuel, add order bad, update order. All these can be controlled through this function.

Payment Category:

Accounts section is a very important part of our system. The cashier will always monitor whether a customer has made a payment, and approve the payment if the payment is made. Accounts department will be aware at all stages for cash or online transactions.

Station Manager:

A station manager at a petrol pump is always a busy place. People of this post are in charge of a complete petrol pump. Everything happens at his order. If he wants, he can add sales manager, fuel add and delivery boy. A station manager is in charge of all aspects of a petrol pump.

Admin:

An admin is basically in charge of individual petrol pumps. He has the most power. He can add, remove, manage the station, station master etc.

Super Admin:

Super Admin is the core of an organization or system, through which an organization is controlled. The entire system or software will have one super admin. Super admin will have access to everything. Super admin can manage all petrol pumps, admins of petrol pumps. Besides, it can manage all kinds of functions. So here is the most important and most responsibility of the So here is the most important and most responsibility of the management committee.

Sales Manager:

The sales manager is under the admin of a petrol pump. This sales manager assists the admin in many tasks. A sales manager can manage different types of fuel orders, assign deliveries.

Delivery:

Delivery is a field term. People of this designation go from place to place and deliver fuel. The main driving force of the petrol pump is the delivery people.

5.3 Testing Implementation

Testing is the last step in all of our work, which includes several analysis kinds, feasibility studies, concept implementation prototype designs, front-end design implementation using HTML CSS Bootstrap, back-end design implementation using PHP, JavaScript, and Laravel, etc. Essentially, we execute our complete code during the test phase to make sure there are no problems and everything functions as intended. We will address any errors or bugs discovered during the testing process. After that, he ought to debug the issue and try running the code again to make sure it functions properly. This test is mostly visible in many web browsers, including Mozilla Firefox, Microsoft Internet Explorer, and Chrome.

5.4 Test Results and Reports

We tested our website and found no issues, with all of the coding functioning as intended. As a consequence, our testing findings showed no problems or mistakes. Our report is created with professionally and is based solely on the testing findings. It contains no extraneous information.

CHAPTER 6

IMPACT ON SOCIETY, ENVIRONMENT AND SUSTAINABILITY

6.1 Impact on Society

Our system or organization basically consists of many petrol pumps. The petrol pumps that will be under our software or system can be both private and public. As a result, no one, whether private or public, can-do unethical work or enjoy benefits separately. Besides, online fuel delivery system for petrol pumps will have a good impact socially. Social impact on our software or systems is analysed below:

- Since the gas pumps operating under our software or system are of such high caliber, no one will be able to criticize them.

- All petrol pumps under our software or system shall be managed in such a way that all petrol pumps have maximum vehicle capacity. As a result, a positive aspect about our software or system will emerge in the society.

- People of the society to arrange online delivery through software or system, so that people can avoid suffering.

- Our software or system has location sharing facility, so that fuel delivery is given at exact location without hassle.

- Never worry about petrol from petrol pumps under our software or system. In other words, when the vehicle is stuck at any time and place, if the fuel pump is not found, the fuel can be ordered online through this system.

- Feel the positive side by ordering fuel online through our software or system and feel secure by paying online.

- Payment through online mobile banking is arranged through our software or system, so that payment can be made hassle free and there will be no possibility of money going missing.

- We have a system to deliver fuel to any place at any time through our software or system, so that the people of the society do not have to worry about the delivery of fuel.

- By seeing the working process and progress of our software or system, people in the society will be interested in using it. And other people of the society, drivers, car owners all will get a better understanding about online fuel order system.

- Fuel and fuel prices are determined centrally by our software at gas stations, so that people in the community do not fall prey to any fraud.
- If the people of the society want to know about the payment system of the software or the system, i.e., money transactions, they can show it with proper documents. As a result, people's trust in our software or system will increase.
- Through our software or system various attractive offers are given to the website visitors and general users, so that people can order fuel online through the attractive offers in the software.

6.2 Impact on Environment

Our system or organization basically consists of many petrol pumps. So if you order fuel online, you will come to the specified shared location and give the fuel without any hassle. As a result, there is no environmental problem. That is, if a car stays on the road for fuel, there is not much traffic jam. Again, there will be no need for a large vehicle to tow a car that runs out of fuel. As a result, the people will not have to suffer due to traffic congestion and the environment will not be damaged. When the fuel runs out, if you order instant fuel online, the fuel will be delivered to the specified place. The money earned from the web-based system can be used to beautify the environment around the petrol pumps, such as planting trees, planting saplings, etc. People can move and live beautifully in this beautiful environment. That is, the good aspects of our web-based system will affect the society as well as the environment.

6.3 Ethical Aspects

Our online platform will be morally upright. Orders for gasoline will still be placed on a regular basis using our web-based system, in which case money transactions ought to be managed morally. so that negative remarks cannot be made by users of the web-based system. Because if for some reason the finger of ethics is raised against our web-based system, it will create a very bad impression. Fuel and fuel prices are determined centrally by our software at gas stations, so that people are not cheated. So, we have to be more ethically conscious and conduct our own web-based system ethically.

6.4 Sustainability Plan

We require a precise strategy because our web-based solution is intended to be implemented nationwide. We must create a detailed strategy before launching our web-based system, and

we must continue and carry out all of the operations in accordance with that plan. The detailed proposal calls for unifying all gas stations nationwide into a single platform, after which all gas stations, private, institutional or government, should move forward together and earn more profit. Then, apart from the development work in the petrol pumps with the profit money, we also have to plan how to make the system work better and on a larger scale.

CHAPTER 7
CONCLUSION AND FUTURE SCOPE

7.1 Discussion and Conclusion

The ultimate goal of this project is to use some of the help that our software system can provide to enhance the system. Our software system's primary characteristics include - This system effectively rescues people when they are stuck and cannot find the fuel pump. Online based fuel delivery. Finding and delivering fuel to stranded people through share location. Helping stranded people by delivering fuel anytime anywhere. After placing fuel order online, payment must be made in online payment/account section. Determining fuel quantity and fuel prices centrally at gas stations. Attracting visitors and general users to the website with various offers. Lastly, central management software monitors the function of every fuel pump and software system. Additionally, to guarantee that the program is usable by all funders and regular users. keeping an eye on all offline and internet payment activities in the accounts department for ethical accounting. The last and foremost thing is that this system can effectively ensure the rescue of people when they are stuck and cannot find the fuel pump.

So, the idea of creating software system with many petrol pumps is finally implemented. We have developed a system that will be able to manage and represent every piece of information in the software system. We have tried to cover share location, online delivery, fuel delivery anywhere, online payment, website visitors and general user and account management section for communication. The output of this software system is to earn profit by online delivery through share location, to earn profit by delivering fuel anywhere, to earn from online payment/account section, to earn profit based on visitors to the website, earning profit based on downloads from Google play store, earning profit from general users etc. The entire software system is centrally monitored. So, this system will be beneficial for all petrol pumps and will contribute to great progress.

7.2 Scope for Further Development

We want to continue developing this "Online Fuel Delivery System" software technology in the future. The number of gas pumps that are managed by our software system will initially rise over time, increasing the strain on the server. For this reason, further server improvements are required. Our system will initially only function in a few Bangladeshi

regions, but eventually we hope to expand it nationwide and beyond by attempting to secure funding from different public and commercial institutions. With as many features as our system offers at the moment, we will try to add new features in the future, including expanding the payment options, develop a mobile app.

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