VEHICLE CHECK-IN & CHECK-OUT MANAGEMENT SYSTEM (VCCMS)

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ABSTRAK

Vehicle Check-In Check-Out Management System direka untuk menyelaraskan proses pengesanan kenderaan dalam sesebuah organisasi, iaitu KANEKA(M) Sdn. Bhd. Sistem ini membolehkan pengesanan cekap penggunaan kenderaan, termasuk masa daftar masuk dan daftar keluar, maklumat pengguna dan rekod pemeriksaan kenderaan. Dengan kemas kini masa nyata, sistem mengurangkan usaha manual, ralat dan meningkatkan ketelusan. Sistem ini mesra pengguna, selamat dan boleh disesuaikan untuk memenuhi keperluan khusus organisasi. Secara keseluruhan Vehicle Check-In Check-Out Management System menyediakan penyelesaian untuk pengurusan kenderaan yang berkesan, meningkatkan kecekapan dan akauntabiliti.

ABSTRACT

The Vehicle Check-In Check-Out Management System is designed to streamline the process of tracking vehicles within an organization. The system allows for efficient vehicle usage tracking, including check-in and check-out times, user information, and vehicle inspection records. With real-time updates, the system reduces manual efforts, errors, and increases transparency. The is user-friendly, secure, and customizable to meet the organization's specific requirements. Overall, the Vehicle Check-In Check-Out Management System provides a solution for system effective vehicle management, improving efficiency and accountability.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

In manufacturing plants, vehicles are common for going in and out of the plant to deliver or pick up goods or products. In Kaneka Malaysia, a manual process that is fully managed and monitored by humans to allow the vehicle to enter the plant is still used until now; using the manual process can cause unauthorized persons or unregistered vehicles to enter the plant.

By using a manual method, it raises some problems for the company where it is difficult to manage the in and out of vehicles into the manufacturing plant, the details of the vehicles and driver are also not stored properly. According to (Tenzin et al., 2020), using manual methods also consumes a lot of time as there are a lot of procedures to allow the vehicles to enter the plant. Another problem with using the paper-based system, the record can be damaged or lost and need a content supply of inks, papers and files (Datin. Ginny., 2015). Besides that, the administrator will also face some problems at the end of the month. To generate the monthly report, they need to manually check the record on the paper one by one, which is a waste of time.

With respect to the matter, this project proposes a Vehicle Check-in & Check-out Management System (VCCMS), which will be used by administrators of Kaneka Malaysia to easily manage the check-in process of the vehicles into the manufacturing plant. This system is designed to be used by the driver to register vehicles, assist administrators in keeping track of the system, and allow security guards to handle incoming vehicles at the entrance.

Therefore, the Vehicle Check-in & Check-out Management System (VCCMS) is a web-based system, making it easy for users to access. This system is an automated system for managing vehicles that can give information on the registered vehicles, the driver's information, the date of a visit and other things. In this system, It also provides some features that will

generate and view the number of vehicles visited, store all the details into the database, and drivers can register their vehicles and when approved by the admin, the vehicles will follow the schedule to deliver goods to the plant.

Additionally, this Vehicle Check-in & Check-out Management System (VCCMS) is suggested to efficiently handle the repetitive and difficult process in order to create a better system for the plant's large logistics. The system will simplify the check-in and check-out procedure because all the information can be retrieved from the database without the need for manual entry. Moreover, this approach can lessen human error while conserving time, resources, money, and so on.

1.2 Problem Statement

Currently, Kaneka Malaysia Sdn. Bhd. uses manual system to record the in and out of vehicles to the manufacturing plant. Using paper-based system can cause missing, damage and need supply cost to buy the papers, files, inks and drawer to keeps the record. Moreover, every end of month when the company wants to do the report, the administrator need to manually check one by one the record of the vehicles. Manually check the record is time consuming and sometimes can lead to some mistakes such as the details are wrongly inserted. This may cause the inaccurate report and does not tally with the vehicles that enter the plant.

With the existing system, it can cause inconveniences to the driver, goods carriers and security guard at the entrance and can lead to increased traffic congestion as the drivers need to wait in queue to confirm their vehicle’s details maintained by the security guard at the entrance. Therefore, the suggested plate check management system will offer a system that calls information from a database and only checks to see if a registered vehicle is delivering goods as per the specified schedule.

By using this system, the driver does not need to wait in a long queue to enter the manufacturing plant because this system will ease the check in process. Due to the vehicle's information being stored in a database and also easily accessible, the proposed system would not

require the security guard to manually check every record, which would take a lot of time and increase the risk of error.

The process of the Vehicle Check-in & Check-out Management System (VCCMS) will make it easy for the user, especially administrators, to manage all the information in one web system. The administrator will be able to easily monitor the vehicles and the details of the visitation without any mistake. Then, it can help to lessen the work for the administrator, as everything is recorded and stored in the database without taking a longer time and process like using the previous method.

1.3 Objectives

The objective of this project is to develop a system that makes the process of checking in and checking out easier so that the manufacturing plant can make sure that only registered vehicles are allowed to enter, tightening plant security and lowering the possibility of unregistered vehicles entering the plant.

The objective of this project is:

- To study and understand the issues that arise in using the manual check in and check out process of the vehicles.
- To design and develop a web system that helps Kaneka Malaysia easily manage the check in and check out process of vehicles into the plantation.
- To test and evaluate the proposed web system's performance in producing a useful system that offers the optimal user experience.

1.4 Scope of Project

The scopes of this project are consisting of the following:

I. This system is used by the staff of Kaneka Malaysia Sdn. Bhd.

II. The users of this system are:

Admin (staff)

- The administrator is responsible for managing the entire system, including registration, updates, delete, and viewing vehicle details.
- The administrator easy to monitor the daily record of vehicles, approve the booking date from the driver and manage the list based on the schedule of the delivery.
- The administrator will have access to data and be able to produce reports of the vehicle data.

Company

- The company can register and fill all the details of vehicles and driver in the system.
- The company can make an appointment for delivery and submit it for approval.
- The company are able to update the vehicle and driver information and upload the picture of the vehicle and driver into the system.

Security Guard

- Security guard can search the number plate through the system and do the verification. Once the vehicles are verified, security guard can allow the vehicles to enter.
- Security guard can manage the inspection checklist of the vehicles.
- Security guard need to generate report the numbers of denied or approve vehicles that entered the manufacturing plant daily.

III. Tools used for this system:

- **Language:** Server-side scripting (PHP Language), Client-side scripting (JavaScript)
- **Styling:** CSS
- **HTTP Server:** Apache
- **Software:** MySQL server, Visual Studio code, Draw.io, Figma

1.5 Thesis Organization

There are five (5) chapters in this thesis. In Chapter 1, the fundamentals of research are discussed. The problem statement is formed in this chapter. It focuses on the existing problem that led to the creation of a solution system. Following that, the aim and scope of this chapter have been clarified and stated clearly by referring to the problem statement.

An overview of relevant literature and noteworthy research on the topics are covered in chapter 2. It will cover the current existing method, the technique used, and a comparison between the systems. This chapter discusses current systems that are relevant to the proposed project, as well as a comparison of the systems, with the advantages and disadvantages of each existing system compared to a few standards.

The third chapter is the methodology of the proposed project. This chapter discusses the project management framework, project requirement, proposed design for the project including the use case diagram and description, context diagram and activity diagram, data design, design prototype, and explanation of potential use of the proposed solution in a real-time situation.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter contains a literature review on the existing system, In this chapter, at least three (3) existent systems must be described. We discovered three current systems to be discussed. These three existing systems were analyzed and chosen. In order to complete this review, all pertinent data were gathered using research methods and facts.

The overall system functions for these three systems are covered in this chapter. The three selected existing systems are i-Neighbour TimeTec Smart LPR, The Receptionist, and UNIMAS e-Booking App. These 3 systems shared the same purpose which is they manage the check in and check-out process. But different systems perform a variety of tasks.

After describing the three existing systems, they will be compared on their advantages and disadvantages. From here, we can see the pros and cons of the system. The proposed system will be discussed at the end of this chapter. Reviewing the current systems allows us to improve the new system without any issues.

2.2 Review of Existing Systems

Three existing related systems will be examined in this chapter. These three systems are UNIMAS e-Booking App, The Receptionist and i-Neighbour TimeTec Smart LPR. Each of these web systems has a different interface, functionality, and content.

2.2.1 UNIMAS e-Booking App

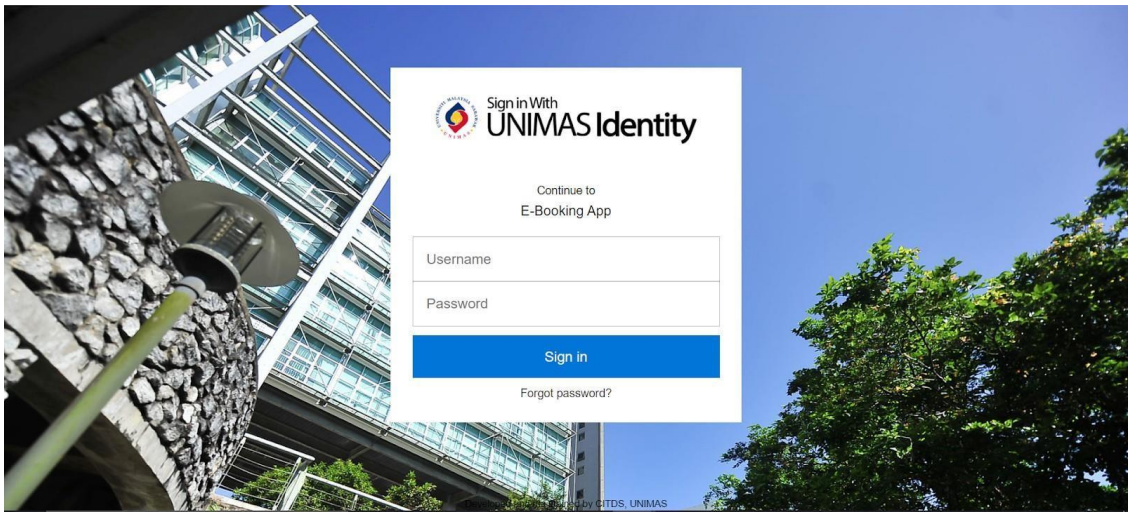


Figure 2.2.1(a): the login page for the UNIMAS e-Booking System

UNIMAS e-Booking is a system that allows students and staff at Universiti Malaysia Sarawak to reserve facilities such as guest homes, rooms, sports facilities, and vehicles. For UNIMAS Identity, in figure 2.2.1(a) users must log in with their matric number and password.

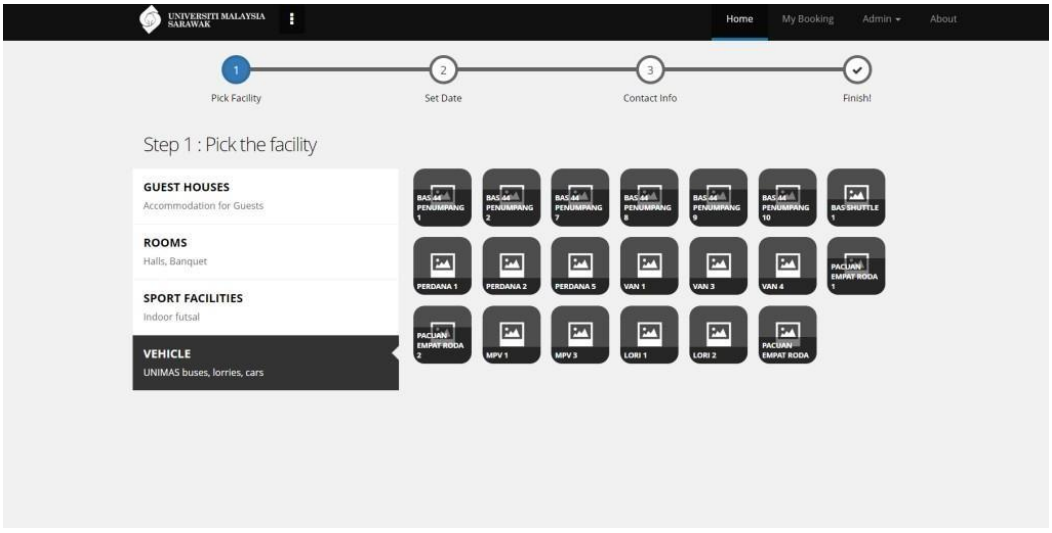


Figure 2.2.1(b): displays the UNIMAS e-Booking System page to choose the vehicle

Figure 2.2.1(b) shows the steps on how to book a vehicle that is available at UNIMAS. There are several types of vehicles available, users can choose which one the vehicles they wantto book such as busses, lorries or car.

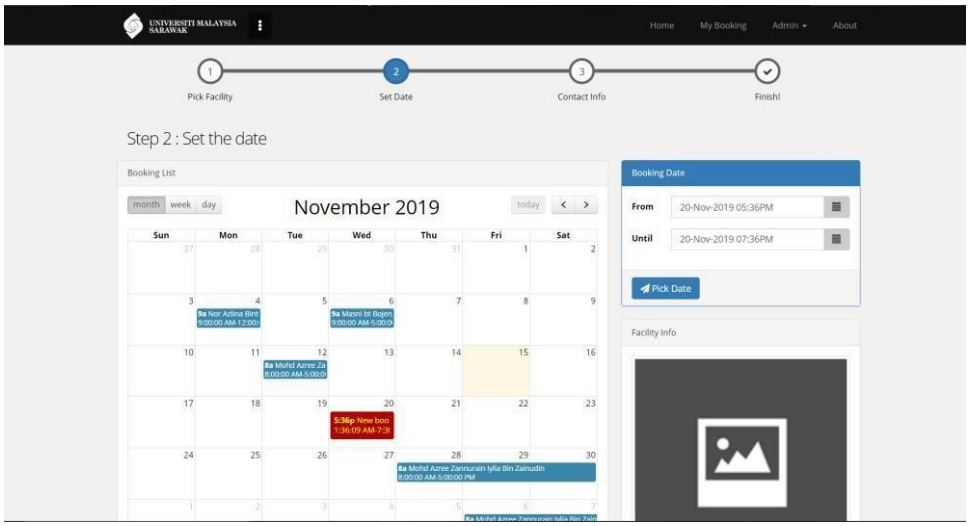


Figure 2.2.1(c) shows the page where the date can be set for a vehicle reservation.

In this figure 2.2.1(c) it shows users can choose the date and time that they want to use the vehicles, in the set the date section it also shows the booking date of other users. After the user chooses the booking date, the user can proceed to the contact info step.

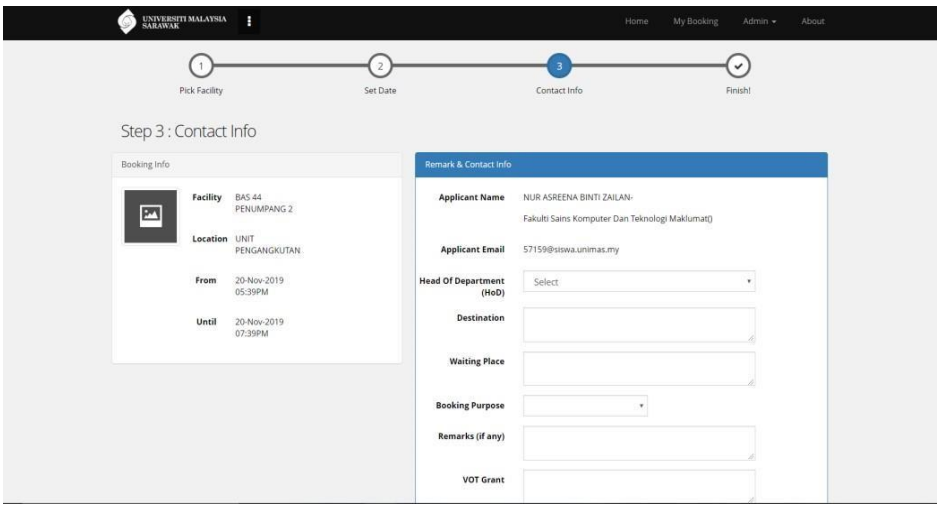


Figure 2.2.1(d) shows contact info

Finally, in figure 2.2.1(d) shows the user needs to fill up all the contact info that is necessary. All the details that fill up in the system will be stored in a database and can be retrieved by the admin to check and approve the booking

The advantage of this system is it creates a consistent system for managing the booking of related facilities at UNIMAS. Users of this system can book a vehicle by checking the availability of the time and date without having to approach the person in charge. This online system allows the user to book at a time that is convenient for them. They can make the reservation over the weekend.

Furthermore, it benefits the administrator. It reduces the quantity of admin jobs because the admin can search for available time in the smallest amount of time. Admin did not have to manually create and fill the timetable and then change it again and again to get the ideal timetable.

2.2.2 The Receptionist - Visitor Management System

Visitor management system is the process of tracking everyone who enters your building or the office. A visitor could be a client, delivery person, a candidate for employment, a contractor or anyone who is not a regular full-time employee at the company. This is a technology used to track visitors in a formal way.

Figure 2.2.2(a) Home page Screen

The figure 2.2.2(a) shows the first page that the user will see when use the system which is the homepage of the system. Users can click the check in button to proceed to the next step.

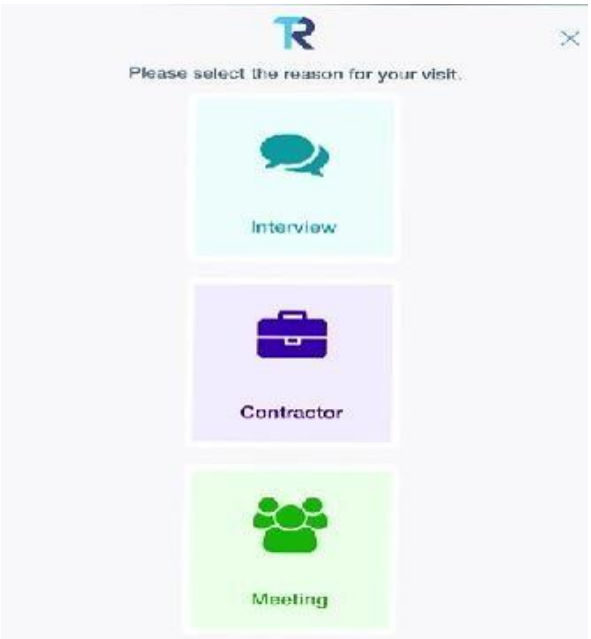


Figure 2.2.2(b) Reason of visit

Figure 2.2.2(b) shows the reason for the visit to the company, either the visitor is visiting as an interview, contractor or for a meeting. Users can choose which one they want to perform.

Figure 2.2.2(c) Person to meet

In this figure 2.2.2(c), it shows the list of people that visitors want to meet. Visitors just easily click at the image and name of the person they want to meet and at the last step the notification will be notified to them through email.

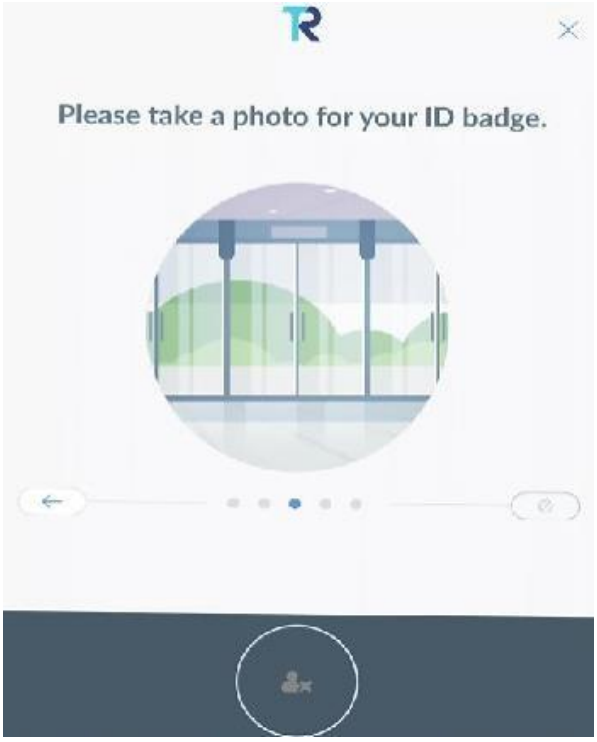


Figure 2.2.2(c) Take a photo

For the security purpose, the figure 2.2.2(c) shows that a visitor needs to take a picture of themselves in a space provided. Other security measures that are taken by this system will allow the visitor to take the picture once the visitor is in the frame, if there is no face detected in the frame, the snap button cannot be clicked.

Figure 2.2.2(d) Take a photo of the driver's license.

Figure 2.2.2(d) shows the other security measure that is available which is to take a photo of the driver's license to ensure the identity photo taken on the previous step is the same with the photo that appears on the driver's license. This will protect the security where only the authorized person can enter the company. With this easy digital sign-in system, it can capture all the required information and print custom photo ID badges without having to lift a finger.

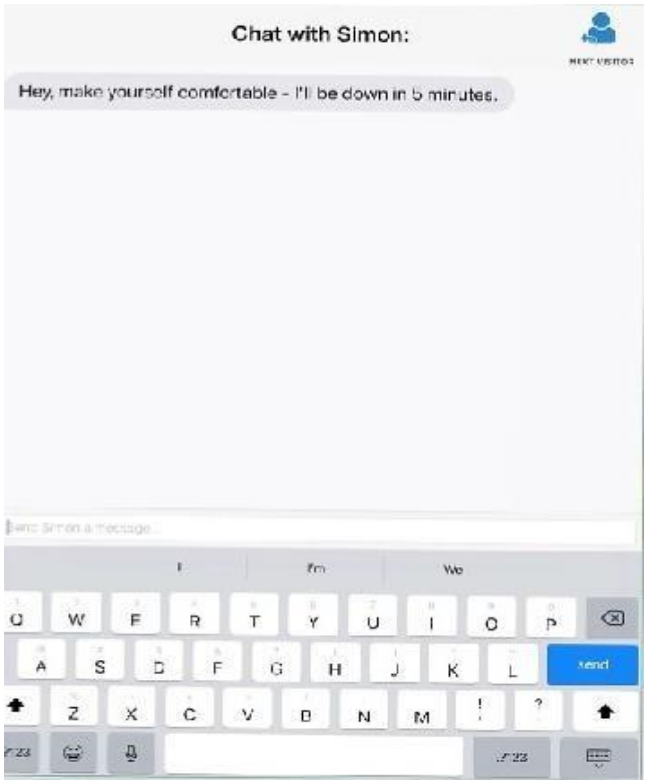


Figure 2.2.2(e) Chat room with person to meet

When a visitor arrives at the office, the visitor management system sends an automatic notification to the person the visitor is there to see. Figure 2.2.2(e) shows when the arrival of a visitor has been sent to the person of the company, it will direct to the chat room between the person and visitor. The two-way communication provided in this system eases both parties. If there is any unwanted event such as the employee are late for a meeting with the client, the employee can send a quick note to the client. It is a secure personal message that is built by The Receptionist System.

Employees check in

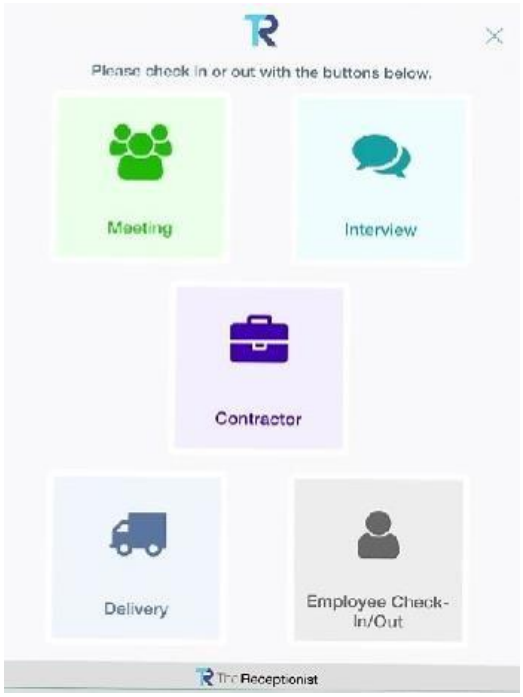


Figure 2.2.2(f) Check in page for user of The Receptionist

Figure 2.2.2(f) shows that the user can check in the system following their roles at the company. In this figure, users choose the Employee Check-In/Out to authorize their identity before enteringthe system.

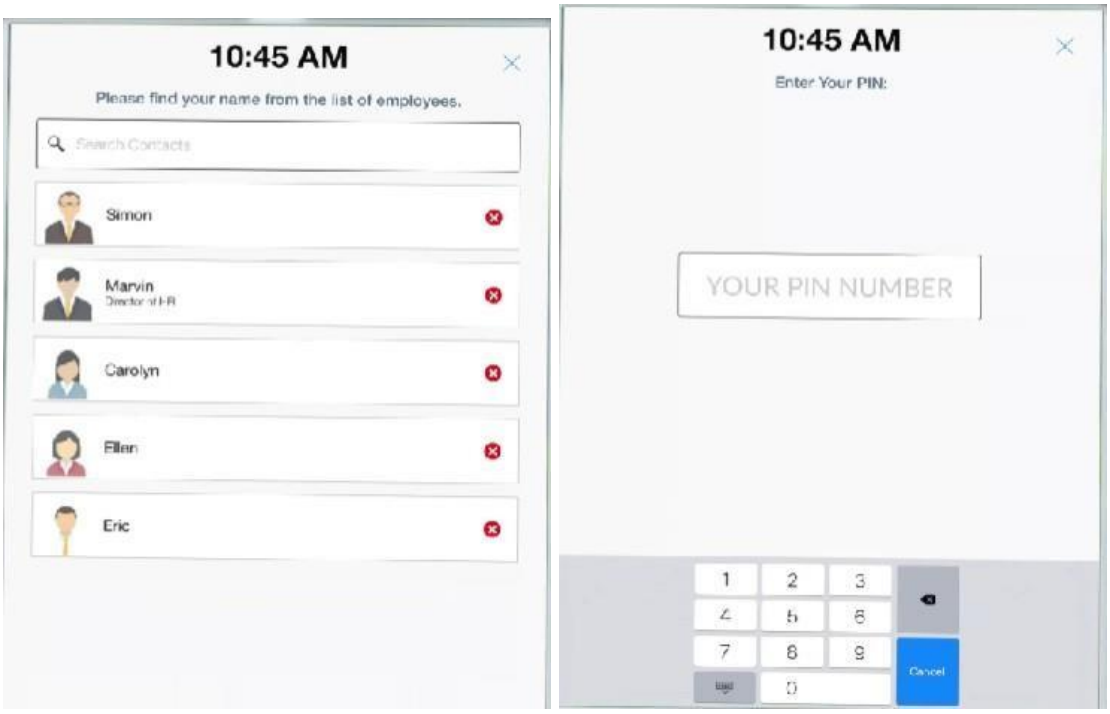


Figure 2.2.2(g) List of the employees

In this figure 2.2.2(g) it shows the list of employees that have been registered in the company. Employees need to choose their name and click the X button to check in, when the employee clicks the button, it will prompt the user to enter the pin number of their ID. This feature prevents from other user wrongly used the ID of the employee to enter the system

Figure 2.2.2(h) Successfully check in to the system

The figure 2.2.2(h) shows the employee successfully checking in to the system when they enter the correct pin number of their ID. if the employee failed to insert the correct pin number, the system will reject the employee to check in and they need to re-enter back the correct pin number.

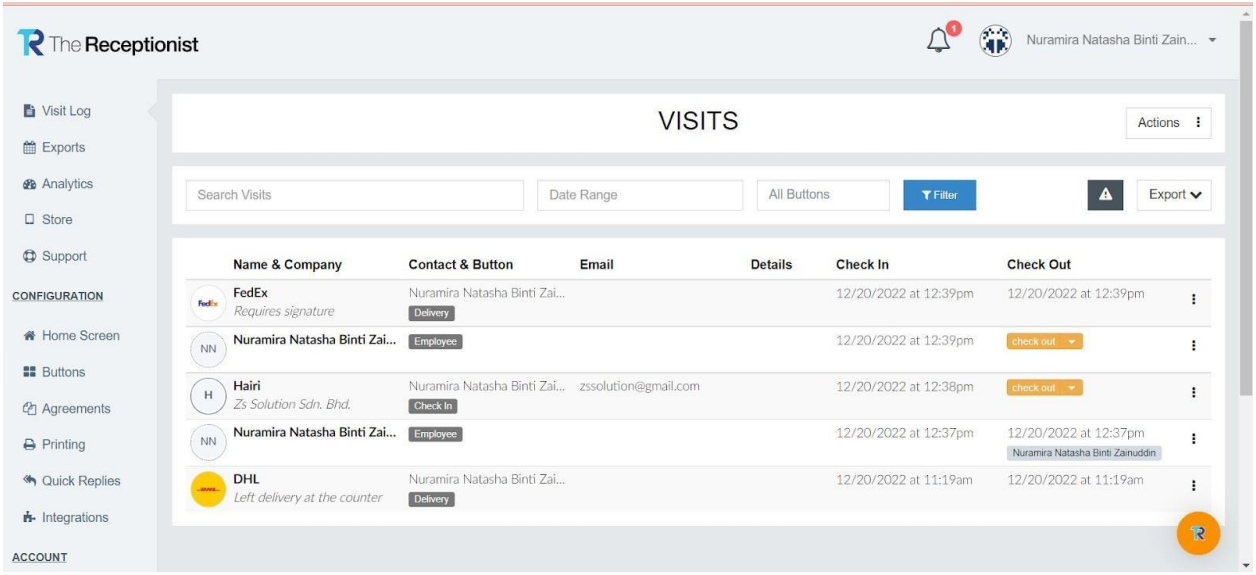
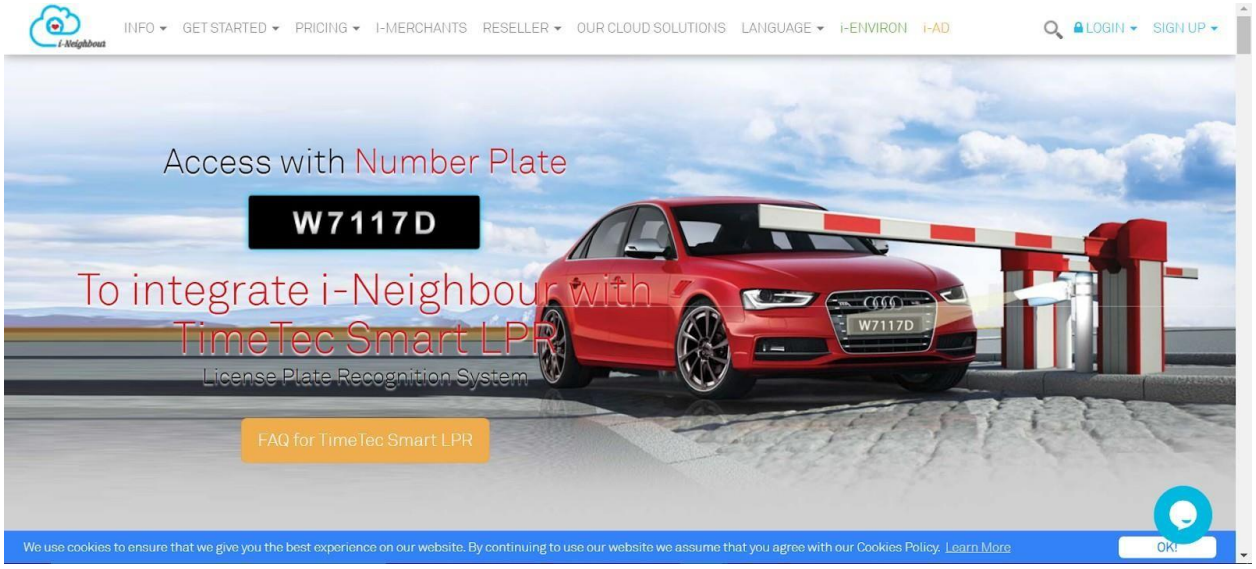


Figure 2.2.2(i) Report of visits

Figure 2.2.2(i) shows the report of visits, it will display a list of visits that has been recorded. Employees can filter the search to ease the searching by using specific filters such as by check in dates, delivery or employee. All the visitor data are securely stored in the cloud so you can always keep track of who has visited, whether it's for auditing purposes or in case of an emergency. All records are kept safe and accessible with cloud-based storage. No more wasting time looking through log books and files, or stressing over losing physical files. Furthemore, the reports can also be exported as the CSV or PDF file.

2.2.3 i-Neighbour TimeTec Smart LPR



A licence plate recognition system called TimeTec Smart LPR is used to automate vehicle access and enhance the security of neighborhood parking areas. TimeTec, a Malaysian business, created this method to convert scanned images most accurately into readable alphanumeric text, this system combines optical character recognition (OCR) technology and an LPRcamera. The system is designed to be standalone and it is also made integratable with its company-owned system or software such as cloud-based TimeTec Visitor Management System (VMS), TimeTec Access, TimeTec Parking, and i-Neighbour Smart Community System to ease entry and exit of vehicles into and from an enclave (TimeTec Smart License Plate RecognitionSystem, n.d.).

The first step in activating the TimeTec Smart LRP System is the user must pre-register their vehicle's license plate number into the TimeTec iSense in order to use the system. After that, the registered vehicle can use the barrier gate's camera to enter and exit the barrier gate by scanning its plate number with the system's camera. After scanning the plate number, TimeTec Smart LRP will compare it to the system's database. As soon as the license plate number matches one in the database, the gate will automatically open.

Additionally, the TimeTec Smart LPR system has a human override capability that enables a security guard to manually enter the automobile plate number into the system for

verification if it is unable to recognise it. The system will immediately grant access if all the information is correct. Furthermore, the system will take a picture of the car plate number in order to store it in the database for future use and system training.

The advantage of this system is the user no longer need to scan their card to access barrier gate at the entry and exit points which mean it saves a lot of time and hassles. This system can speed up the vehicle access process by granting instant access to authorised vehicles and preventing unauthorised vehicles from entering a residential area, while keeping the audit trail intact and available for future reference. Moreover, the system constantly delivers accurate data in real-time. The system's connection to cloud-based technology allows for constant, real-time access to information which makes monitoring effective. Additionally, the system generates and analyses a report with all the data from each visitation. In order to organise their security force, administration would be able to fully utilise the analysed reports, which would lead to better management.

The disadvantages of the TimeTec Smart LRP System is that it is unable to track vehicles in residential areas. The system is unable to confirm whether a private parking lot is being used legally because it is primarily designed for vehicle access control.

2.3 Comparison of Existing System

Based on the review done in section 2.2. Table 2.1 shows a comparison of three existing systems. The system's features and functions are used to make comparisons.

Features/Functions	**UNIMAS e-Booking App**	**The Receptionist**	**i-Neighbour TimeTec Smart LPR**	**Vehicle Check-in & Check-out Management System (VCCMS)**
Login / Registration	✓	✓	✘	✓
Plate Recognition	✘	✘	✓	✓
Administration System	✓	✓	✓	✓
Connected Online	✓	✓	✓	✓
User Registration	✓	✓	✓	✓
Received Notification	✘	✓	✘	✓
Schedule a booking	✓	✓	✘	✓

Table 2.1: Comparison on three (3) existing system

	UNIMAS e-Booking App	**The Receptionist**	**i-Neighbour TimeTec Smart LPR**
Technology Used	Web-based	Web-based	Web-based and License Plate Recognition (LPR) technology
Product	To manage the booking	To track the visitor and	To automate vehicle

functionality	of the facilities that are available in UNIMAS.	employee that enters the building or office.	access into the neighbourhood.
Who use the system?	Staff and student of UNIMAS and admin	Visitor, employee and admin	User and admin
Performance	Low	Moderate	High
Schedule a booking	Yes	Yes	No
User-friendly interfaces	Simple	Yes	Yes
Security	Moderate	High	High

Table 2.2: Analysis comparison on three (3) existing system

	UNIMAS e-Booking App	**The Receptionist**	**i-Neighbour TimeTec Smart LPR**
Advantages	• Can book the date the use the vehicle. • Good user navigation.	• Provide a lot of features that ease the administrator. • Good security features.	• Integrate with its company-owned system. • Good security features to allow the vehicle to enter the neighbourhood.
Disadvantages	• The system did not provide an image of the vehicle. • The color scheme is dull and not attractive.	• The system did not record the plate number and type of vehicles that enter the building to do the delivery.	• Cannot track the vehicle in the residential areas.

Table 2.3: Advantages and disadvantages on three (3) existing system

2.4 Summary

This chapter discussed some topics which related to what, why and how the existing system works. This chapter also discusses the technology to develop the system and it's useful to help in developing the new system. The comparison between existing systems could assist in making a new system more competitive than an existing one. Additionally, this comparison will decrease some system errors and increase system productivity. Literature review helps to learn the modules and features of the existing system that might help to build or develop the new system. The techniques and methods can guide for improvement of the system development process. All the information that is in the literature review is gathered and collected from various online websites and articles. This information is useful and help to guide for the next chapter process.

CHAPTER 3

METHODOLOGY

3.1 Introduction

The implementation of the methodology in the Vehicle Check-in & Check-out Management System (VCCMS) will be covered in this chapter. In the development process, methodology plays an important part in the application development process. A framework for planning, designing, and managing the development of information systems is frequently referred to as the application development process. The framework utilized for a particular project is typically based on a variety of organizational and technical data to meet the project's requirements.

The RAD model has been selected as the methodology for this project. This model is known as a type of incremental model. It is based on a life cycle that is both iterative and evolutionary. As an iterative and incremental methodology, RAD uses minimal planning in favour of rapid development. The process of writing software includes the system development planning. The goal of RAD is to speed up system development by dividing a set of tasks within a given project schedule.

The benefit of RAD methodology is that it provides a higher quality where users interact with developing projects, and the system functionality from the RAD project can often be much higher and achieved. This approach is adaptable to changing requirements, and the system's progress can be measured to ensure the project is completed on time.

3.2 Project Management Methodology

For the development of software or applications, a variety of methods can be utilised. The RAD model is chosen to be used to construct this project since it is flexible to produce and

deploy software applications quickly because the time given to finish the development of the Vehicle Check-in & Check-out Management System (VCCMS) is less than one year. The RAD methodology is effectively built to adapt to changes and new inputs, such as features and functions, updated at every stage of the development process. The RAD methodology depends more heavily on active user participation. It means that the client Kaneka Malaysia Sdn. Bhd. and developers need to constantly communicate and collaborate throughout the entire cycle so that the client can voice any changes to the developer before the system is complete and ready to use (What is Rapid Application Development, 2005). The RAD model consists of four (4) stages that must be completed for the application to be developed successfully. This methodology of application development is the best option because it enables us to quickly perform several iterations and improvements without having to completely restart a development plan. The four phases of the RAD model method that will be used to construct the Vehicle Check-in &Check-out Management System (VCCMS) are shown in Figure 3.1.

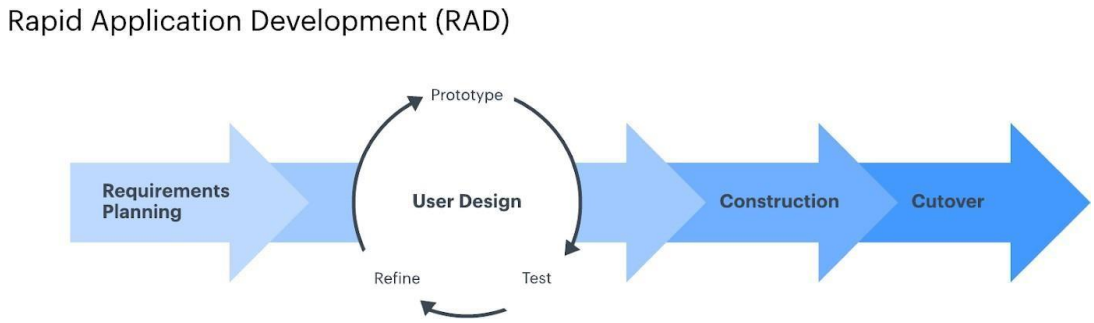


Figure 3.1: Waterfall Model

3.2.1 Requirement Phase

Requirement phase is the primary stage in the RAD model. In this phase, all the objectives, problem statement and scope of the proposed system will be implemented by gathering the requirement from the client which is Kaneka Malaysia Sdn. Bhd. Besides that, it is known as a procedure to make understanding why the systems should be developed and defining the requirements of the project. It also includes the feasibility study from several technical, perspectives, economic, and organisational feasibility aspects. Moreover, Gantt charts will be

produced to schedule and plan all the activities that are involved during the project development together with the duration of each activity. This phase conducts brainstorming to gather all functional requirements that will be included in the Vehicle Check-in & Check-out Management System (VCCMS) to ensure the system provide the convenient way for Kaneka Malaysia Sdn. Bhd. ease to manage the check in and check out process of vehicles entering the manufacturing plant.

3.2.2 User Design Phase

During this phase, all the requirements of the Vehicle Check-in & Check-out Management System (VCCMS) will develop into a model to describe more about its functionality based on what methodology is chosen. The proposed system uses Rapid Application Development (RAD) as a methodology to develop this project. In this phase, the models such as a flowchart of each user scope are drawn to view the process flow clearly and understandable. A Context diagram of the VCCMS system is developing which will show the interaction of the entities and the system. Next, the use case diagram of VCCMS is also developed in this phase to explain what the functionality of each user can perform in this system. Module diagram and Activity diagram were built to view the module that is contained in the system and to describe the sequence for users to interact with the system. Entity Relation Diagram of VCCMS also built to show the interaction between entities, attributes and relationships that show the structure of the database design. In addition, the system design for VCCMS focused on web-based system development. The preliminary design or prototype of the user interface of the system is designed using Figma according to each scope that are stated in the data design section. In this phase, Kaneka Malaysia Sdn. Bhd. Will join forces to ensure all their requirements are met at every step during the design process. The developer and client will collaborate on what worked and what didn't and if any problems occurred, the developer will refine the client feedback until it meets expectations. The Gantt chart is developed to plan the work of developing this project around deadlines and properly allocate resources.

3.2.3 Construction Phase

After completing the previous phase, the next phase is a construction phase. This phase focuses on the development of the project with the goal of completing the detailed design of the system. Coding will be used to develop the real Vehicle Check-in & Check-out Management System (VCCMS) that users can see and utilise. As the system interface or front-end, the Vehicle Check-in & Check-out Management System (VCCMS) will be created using PHP and HTML and written using Microsoft Visual Studio as a text editor and MySQL server as a database or back-end of the system to store the data. If no errors are found during this phase, the next phase can proceed without any issue.

3.2.4 Cutover Phase

the last phase of the RAD methodology, which involves data conversion, testing, switching to the new system, and user training. The Vehicle Check-in & Check-out Management System (VCCMS) is set up in the client's environment to make sure that Kaneka Malaysia can use it with little disturbance on daily operations. Furthermore, the system must be able to maximise both business and worker operation productivity. To ensure that the system is functioning properly, testing is done frequently. The developer will instruct the client on how to utilise the system and provide support in resolving any issues that may arise. The user manual of the system is available to guide clients about how to use the system's functionalities

.

3.3 Project Requirement

The objective of this phase is to generate the high level view of the intended project and to determine the main goals of the project. In the requirement planning phase the high level or knowledgeable end users determine what kind of functions of the system should be. At this phase it will focus on the planning of the overall system structure.

To deliver project planning of this system, a Gantt chart has been made. All the project description has been identified and the initial requirement has been identified. Hardware requirements will be followed with the specification needed and the installation of the software is done. There a few steps that have been made to get some information about user requirement:

- Do some research through the internet and books to books to get the basic information about software tools, devices and the technology that is going to be used in this project.
- Getting the requirement from Kaneka's staff through observation in order to get more information about the management and the current system of vehicle check in process.
- Other than that, to identify the hardware and software requirements.

3.3.1 Functional Requirements

Functional requirements are product features or functions that developers must implement to allow users to complete their tasks. The functional requirements are identified as below:

- The system should allow admin, company and security guard to register and login using a username and password.
- Security guards are able to check the plate number and the details are displayed.
- The company should be able to register the driver and vehicle details.
- Admin can manage the system and has the access to view, edit, delete and update.

3.3.2 Non-Functional Requirements

- **Security:** The admin in charge needs to ensure that users have access to the database. Password verification is used to ensure that the system is not being manipulated.
- **Performance:** Users expect the system to respond quickly and efficiently, which means the system must be able to 30 seconds or less response time in a web browser.
- **Availability:** The system must be accessible every working hours to ensure that the check in process is not disrupted, a lead to critical failure should be sort out within 1-2 days.

3.3.3 Constraints and Limitations

- **Cost:** Knowing how much money to spend on software is essential. More money and time should be prepared to have a more advanced delivery model.
- **Time Schedule:** The completion schedule of the project includes the deadlines for each phase and the date of the final completed system will be made available for the users.
- **Scope:** Limited only to Kaneka Malaysia Sdn. Bhd. that are having issues with check in process to the manufacturing plant.

3.4 Propose Design

3.4.1 Context Diagram

Figure 3.2 shows the Context Diagram of the Plate Check Management System. It involves three main entities which are Admin, Company and Guard

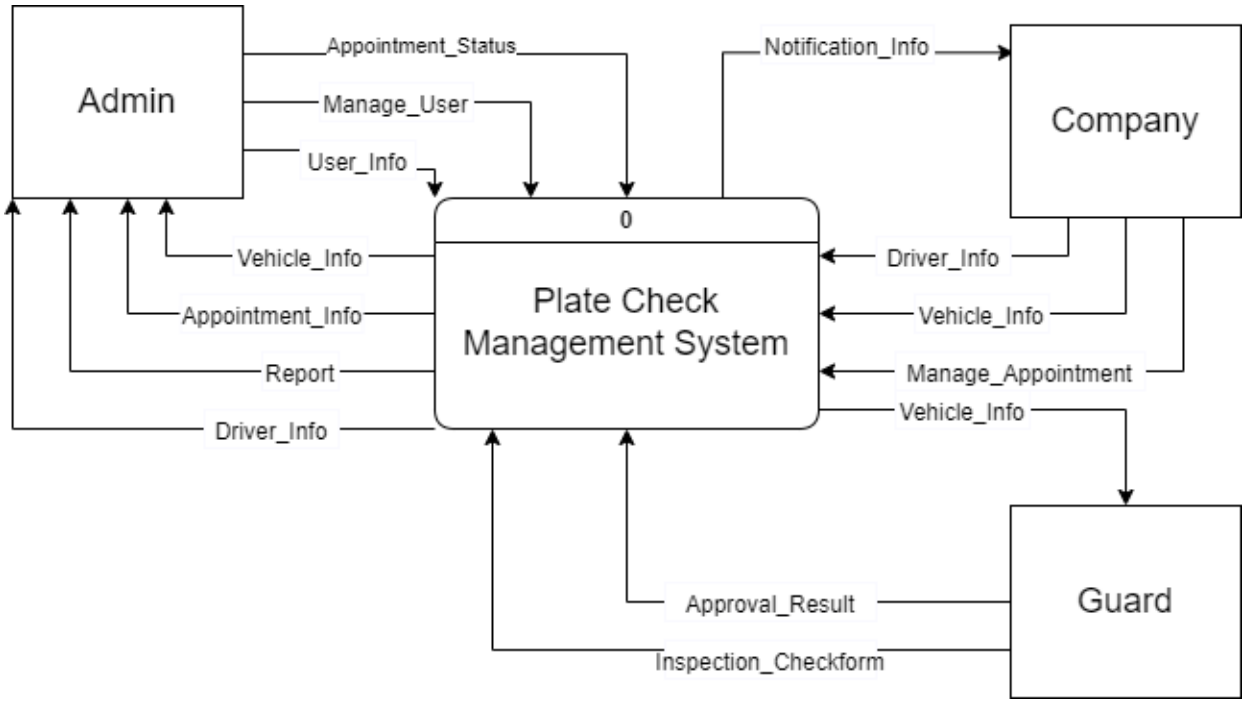


Figure 3.2 Context Diagram

3.4.2 Use Case Diagram

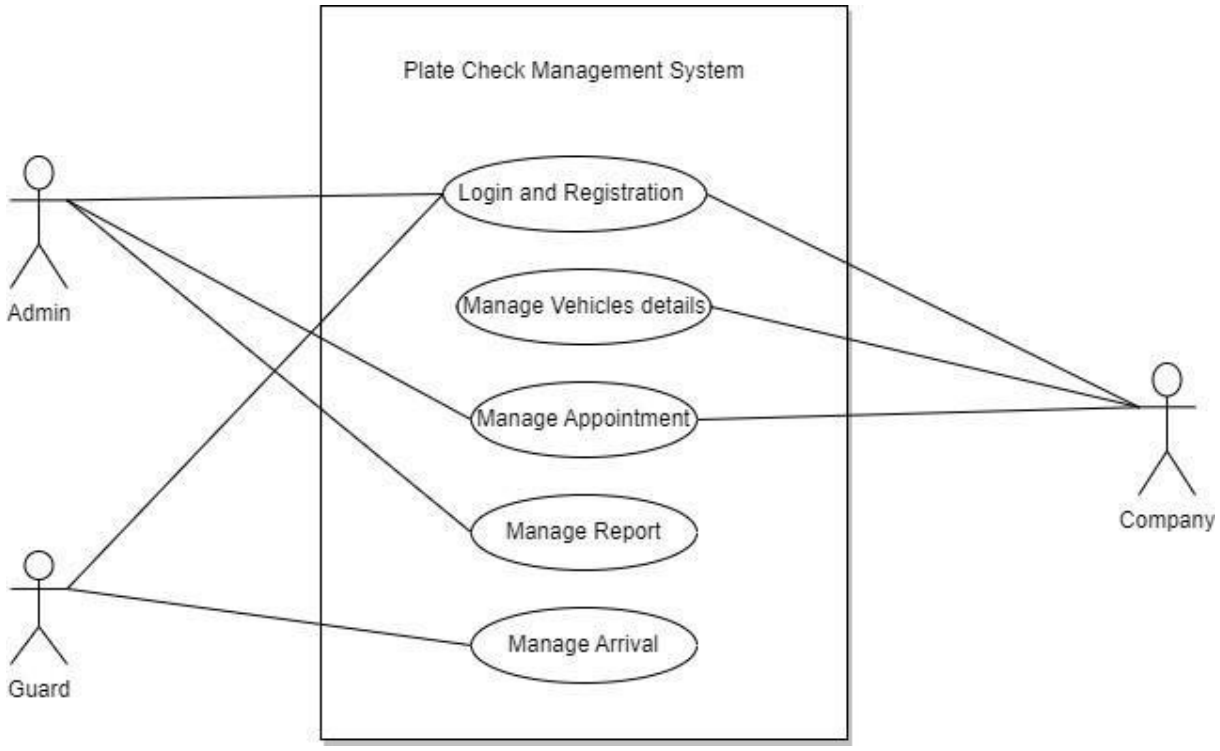


Figure 3.3 Use Case Diagram

Use Case Description

Modules	Description	Actor involved
Login or registration	This module is to allow the user of the system to login to the system. The admin will manage the company and guard login details.	Admin, Company and Guard
Manage Vehicles Details	This module is to add the driver and vehicle details. The company can manage the vehicles by adding, editing, deleting and viewing the details.	Company
Manage Appointment	This module is to book the appointment to the plant and manage it by the company at least a week before and the appointment will be managed by the admin.	Company and Admin
Manage Arrival	This module is for guard to view the vehicles details before allowing them to enter the plant	Guard

Table 3.1 Use Case description and Actor involved

3.4.2.1 Login or Registration

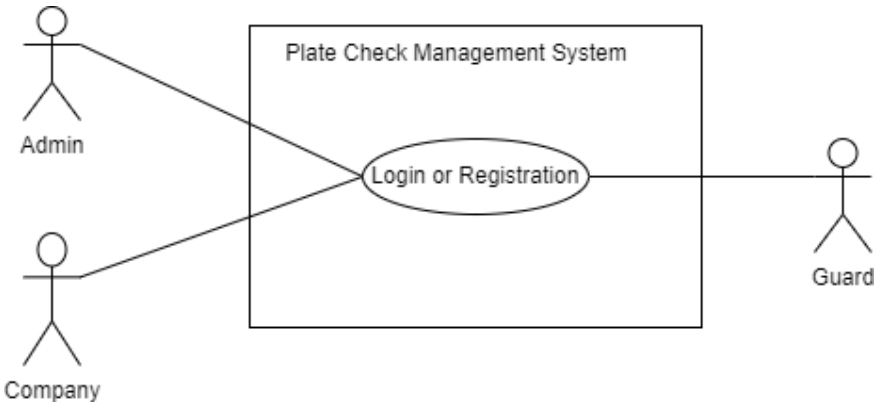


Figure 3.4. Login or register use case diagram

Use Case Description

Use Case Name	Login or registration
Description	This use case is for the admin to login to the system and make an account for the company and guard for them to login to the system.
Actors	Admin, Company and Guard
Pre-condition	Admin has the login details
Basic Flow	**Admin** 1. The use case begins when the user see the login page. 2. Admin insert their username and password and click login. 3. In the registration page, admin will set up the username and password for the company and guard. **Company** 1. The use case begins when the admin provides the username and password to the company. 2. On the registration page, company staff need to fill up all the details of the driver and vehicle. 3. Company staff click on the submit button and wait for approval from the admin. **Guard** 1. The use case begins when the admin provides the username and password to the guard. 2. When the login is successful, guards can manage the vehicle arrival.
Post-condition	All the user success to login to the system
Exception	If the user cannot login to the system, ask the admin for login details.

Table 3.2 Use Case description for Login or Registration

3.4.2.3 Manage Vehicles Details

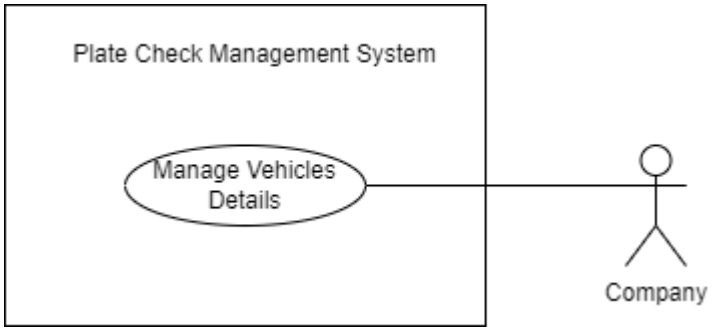


Figure 3.5 Manage Vehicles Details use case diagram

Use Case Description

Use Case Name	Manage Vehicles Details
Description	This use case is for company staff to add the driver and vehicle details into the system.
Actors	Company
Pre-condition	The company staff already login to the system
Basic Flow	1. The use case begins when the system displays a registration page. 2. Company staff fill in all the details of the driver and their vehicle. 3. After filling in all the details, company staff click on the submit button. 4. Wait for registration approval by the admin.
Post-condition	When the registration approve, company can manage the appointment to visit KANEKA
Alternate Flow/Exception	None

Table 3.3 Use Case description for Manage Vehicles Details

3.4.2.4 Manage Appointment

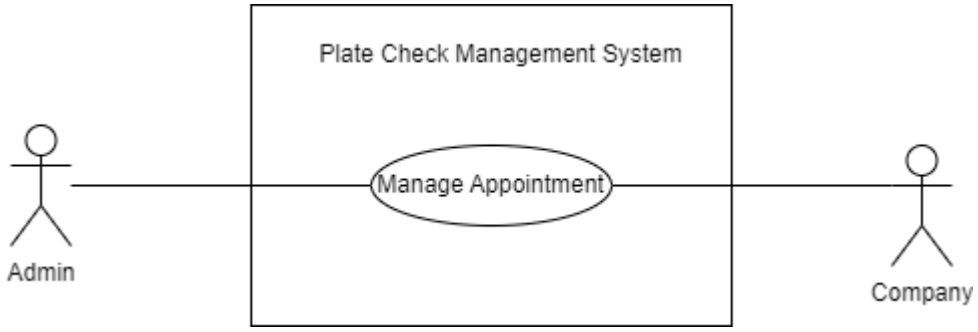


Figure 3.6 Manage Appointment use case diagram

Use Case Description

Use Case Name	Manage Appointment
Description	This use case for driver to manage the appointment to visit KANEKA and the Admin approves or rejects the appointment.
Actors	Company and Admin
Pre-condition	1. All the users already login to the system. 2. The vehicle's registration was already approved by the admin.
Basic Flow	**Company** 1. The use case begins when the system displays a booking appointment page. 2. Companies can choose the date and time of visitation. 3. Once the visitation date and time is chosen, click submit. 4. Wait for visitation approval by the Admin. **Admin** 1. The use case begins when the system displays appointment approval. 2. The system shows the appointment that was made by the company. 3. The admin approves or rejects the appointment.
Post-condition	The driver can visit the KANEKA
Exception	None

Table 3.4 Use Case description for Manage Appointment

3.4.2.5 Manage Arrival

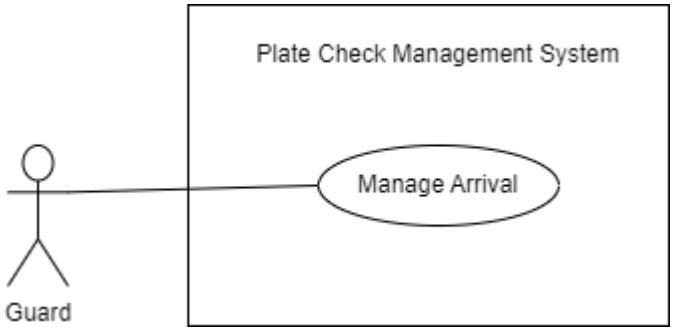


Figure 3.8. Manage Arrival use case diagram

Use Case Description

Use Case Name	Manage Arrival
Description	This use case is for Guard to approve or reject the arrival of vehicles to the plantation.
Actors	Guard
Pre-condition	The guard already login to the system
Basic Flow	1. The use case begins when the system displays the visitation approval page. 2. The guard can search for a visitation appointment by the name of the driver or vehicle plate no. 3. The guard can view the details of the appointment. 4. The guard will manage the vehicle inspection check form. 5. The guard can approve or reject the visitation. 6. the time of the check in and check out will follow the real time.
Post-condition	The driver and vehicle can enter the KANEKA
Exception	None

Table 3.6 Use Case description for Manage Arrival

3.4.3 Activity Diagram

Below are the activity diagram for each module consists in the Plate Check Management System:

3.4.3.1 Login or Registration

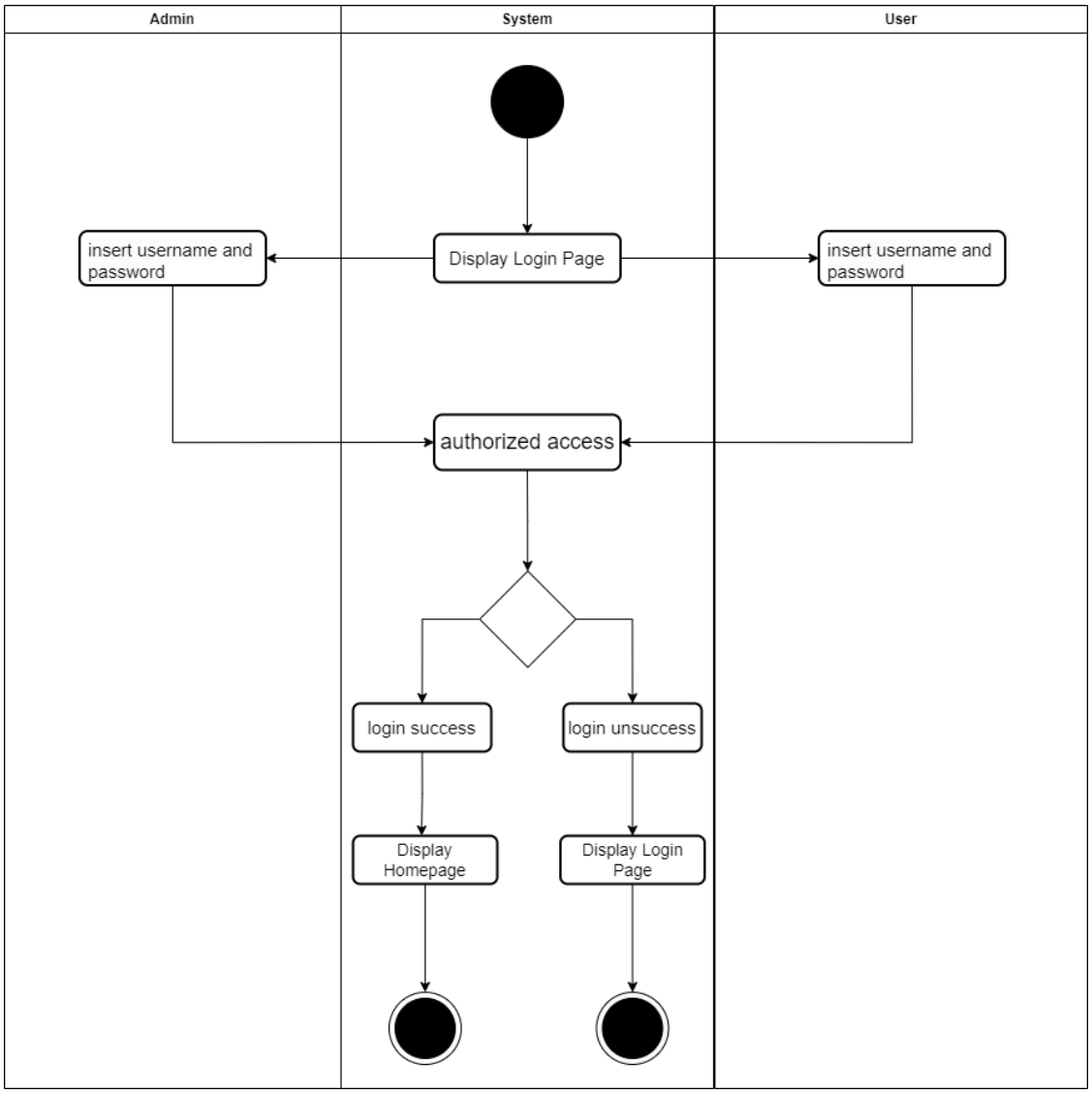


Figure 3.9 Activity Diagram for Login or Registration

3.4.3.2 Manage Vehicles Details

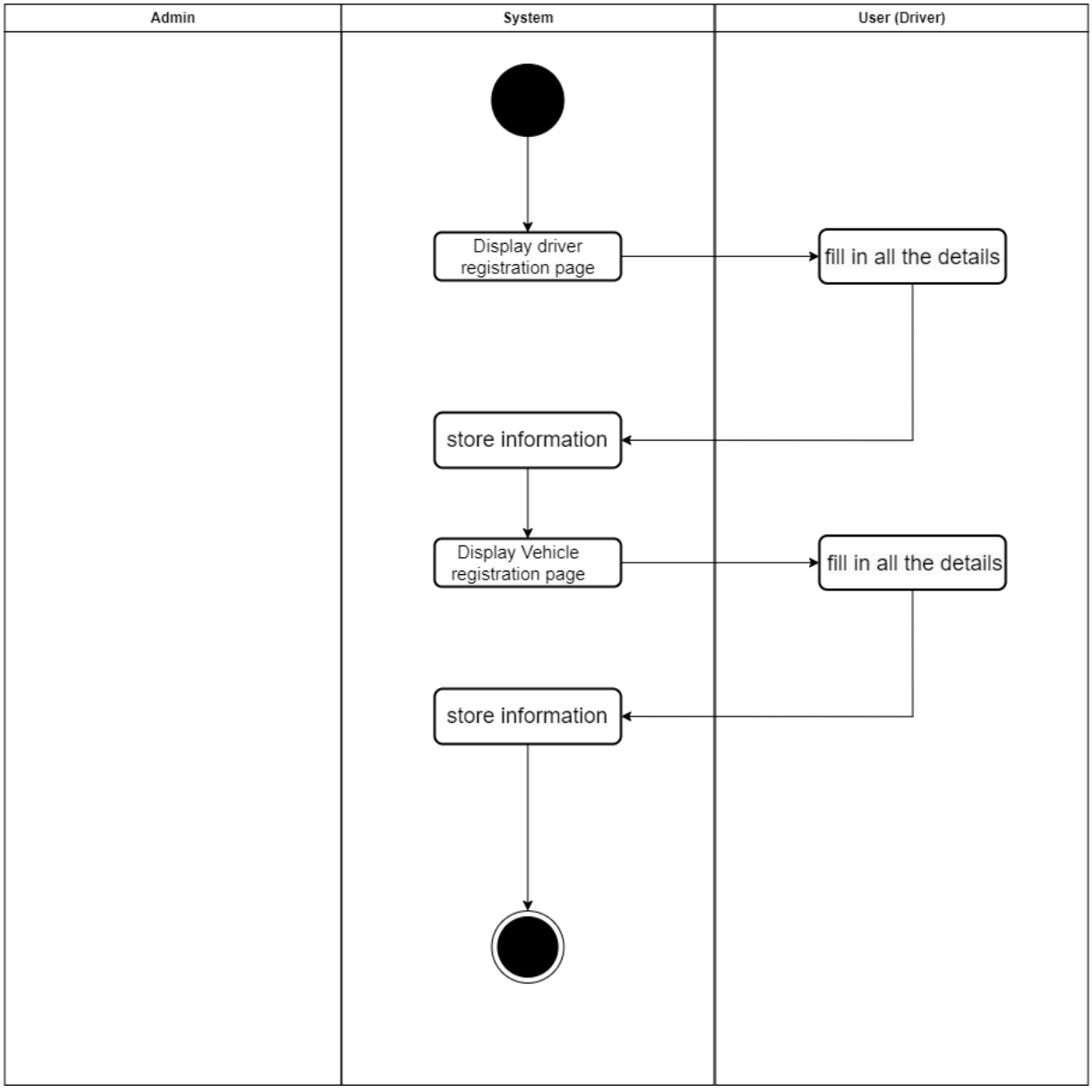


Figure 3.10 Activity Diagram for Manage Vehicles Details

3.4.3.3 Manage Appointment

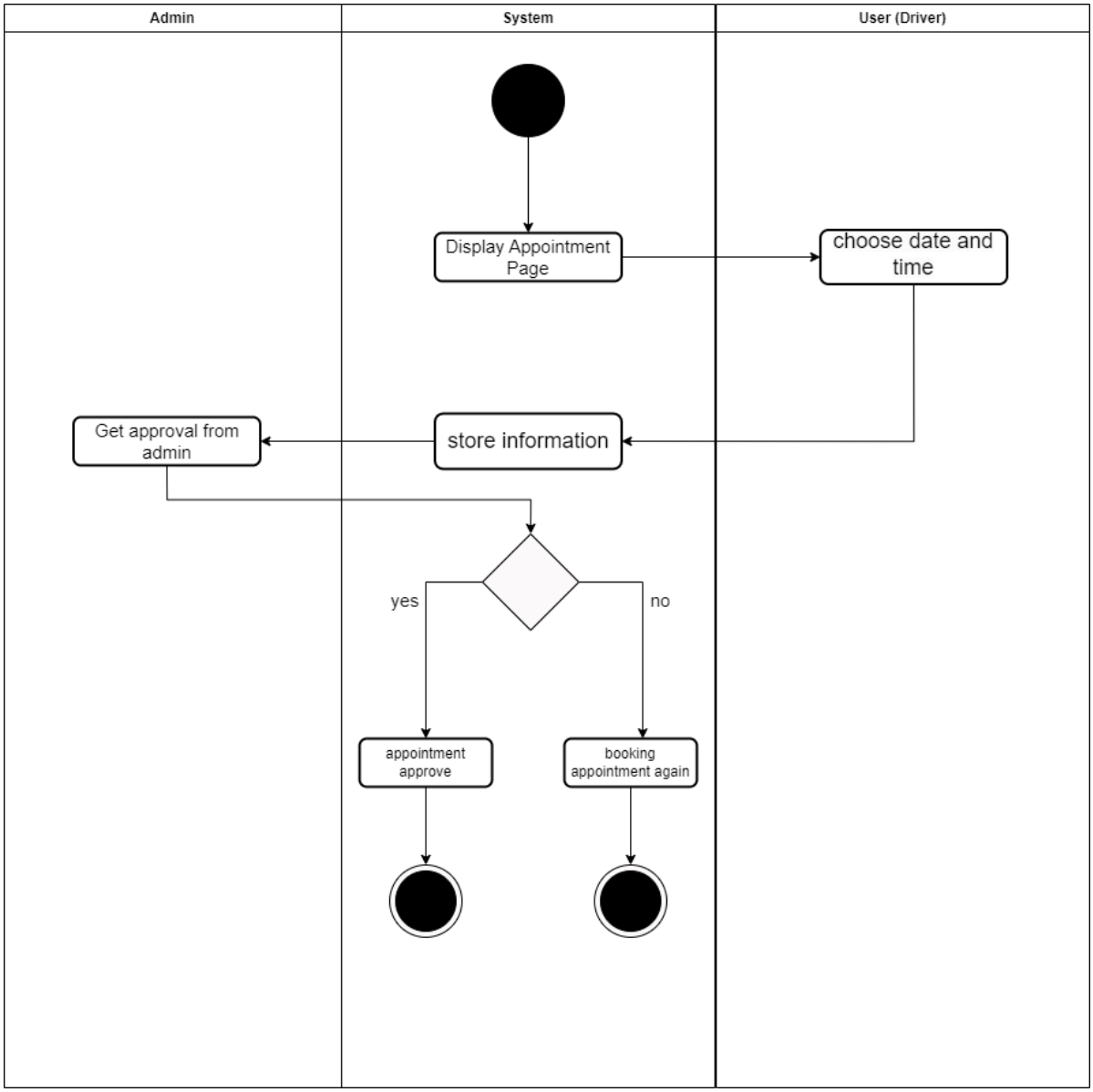


Figure 3.11 Activity Diagram for Manage Appointment

3.4.3.4 Manage Report

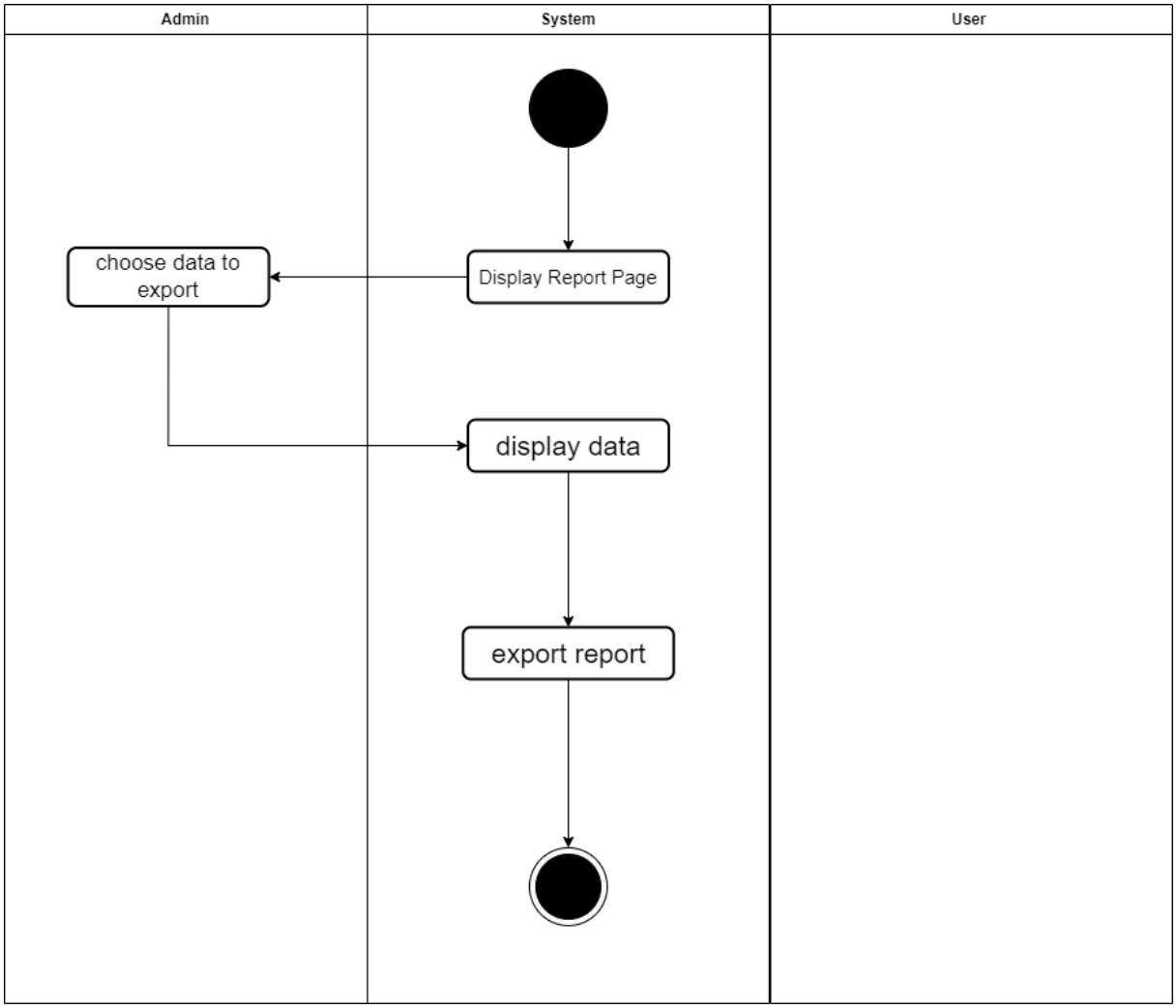


Figure 3.12 Activity Diagram for Manage Report

3.4.3.5 Manage Arrival

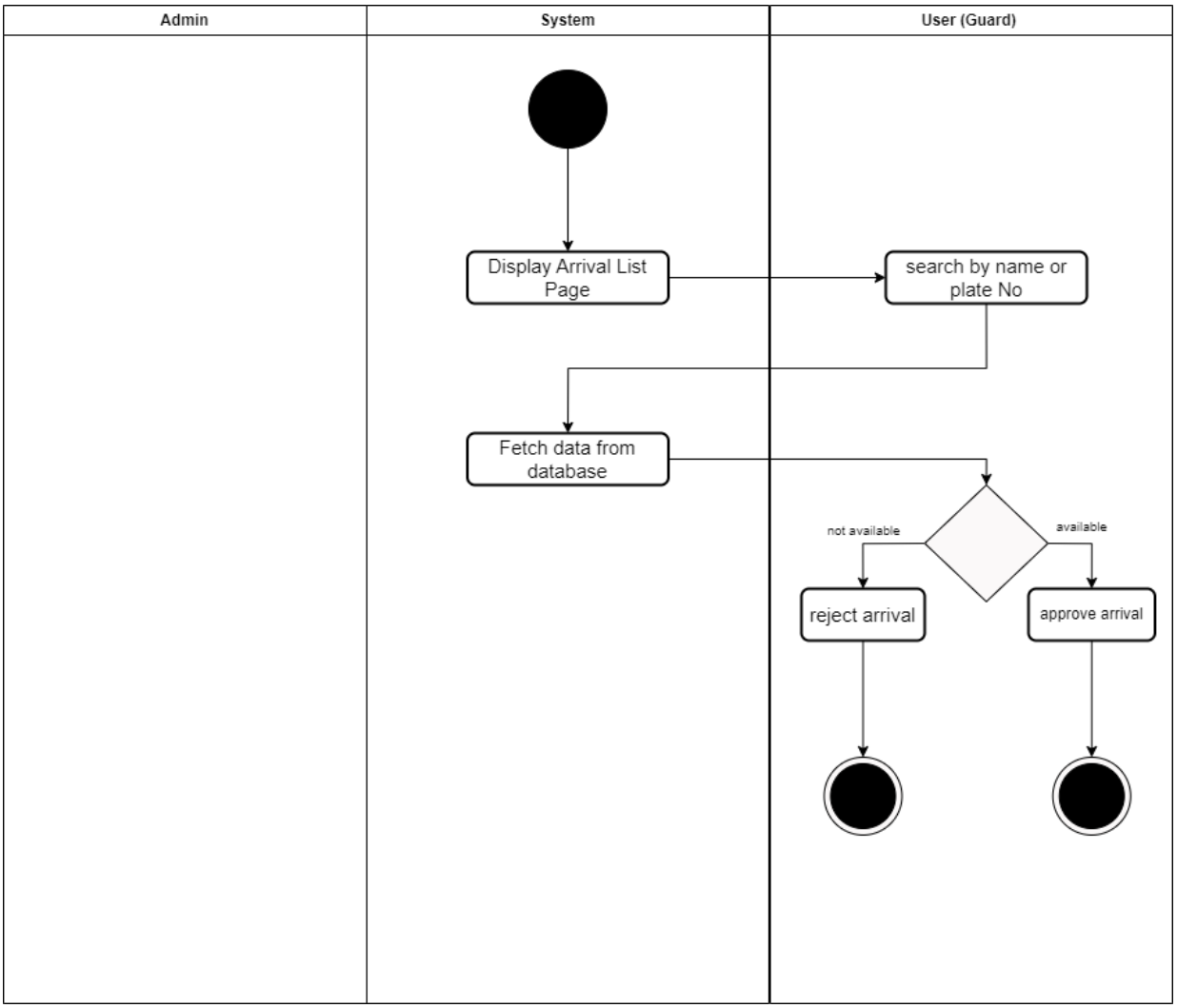


Figure 3.13. Activity Diagram for Manage Arrival

3.5 Data Design

3.5.1 Entity Relationship Diagram (ERD)

Figure 3.14 below shows the ERD of Vehicle Check-in Check-out Management System. This ERD explains all the processes of the system that are linked to each other. For example, only the admin can manage the user of the system which is booking date, company, and guard. Companies can add or update the driver and vehicles that are assigned to deliver to the Kaneka Malaysia Sdn. Bhd.

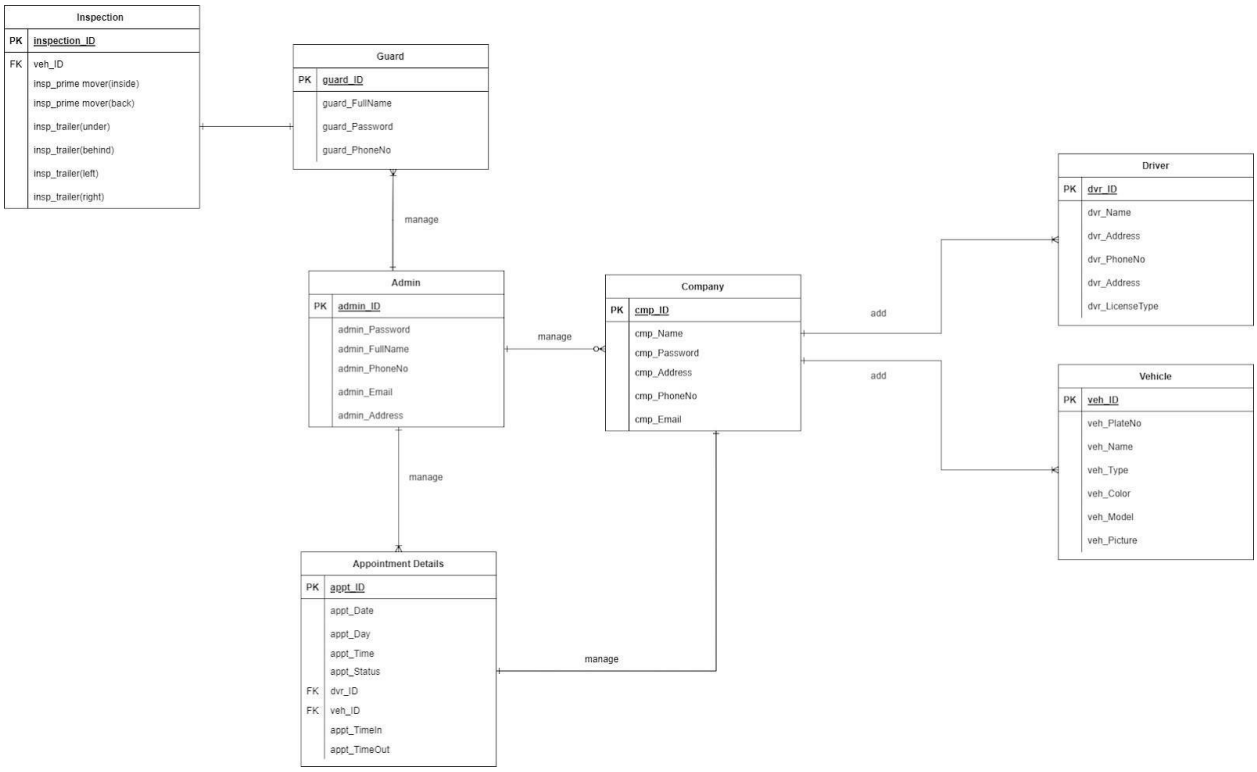


Figure 3.14 ERD of Vehicle Check-in Check-out Management System

3.5.2 Data Dictionary

Data dictionary is used to describe the contents, format and structure of the database and relationship between elements and manipulation of the database. Table below shows the list of attributes, description, data type and constraint that is used in the system. Data dictionary of Vehicle Check-in Check-out Management System consists of Login Page of the admin, company and guard. The vehicle's details, booking date and generate report.

Table Staff

Field Name	Data Type	Description	Constraint
User_ID	int(10)	Unique ID for all the user	PK, Not Null
FullName	int(30)	User's full name	
Password	varchar(20)	User's password	
User_Email	varchar(50)	User's Email	

Table 3.7 Data Dictionary for Staff

Table Company

Field Name	Data Type	Description	Constraint
cmp_ID	int(10)	Unique ID for the company	PK
cmp_Name	int(30)	Company's Name	
cmp_Password	varchar(20)	Company's Password	
cmp_Address	varchar(50)	Company's Address	
cmp_PhoneNo	int(15)	Company's Phone No	
cmp_Email	varchar(20)	Company's Email	

Table Vehicle

Field Name	Data Type	Description	Constraint
veh_PlateNo	int(10)	Unique ID for the vehicle plate number	PK
veh_Name	int(30)	Vehicle's Name	
veh_Type	varchar(20)	Vehicle's Type	
veh_Color	varchar(50)	Vehicle's Color	
veh_Model	int(15)	Vehicle's Model	

Table Driver

Field Name	Data Type	Description	Constraint
dvr_ID	int(10)	Unique ID for the driver ID	PK
dvr_Name	varchar(20)	Driver's Name	
dvr_SafetyCard	varchar(50)	Driver's Safety Card	
dvr_PhoneNo	varchar(50)	Driver's Phone No	
dvr_LicenseType	varchar(15)	Driver's License Type	
dvr_CompanyName	varchar(50)	Driver's Company Name	

Table 3.9 Data Dictionary for Driver

Table Guard

Field Name	Data Type	Description	Constraint
guard_ID	int(10)	Unique ID for the guard	PK, Not Null
guard_FullName	varchar(30)	Guard's full name	
guard_Password	varchar(30)	Guard's password	
guard_PhoneNo	int(15)	Guard's Phone No	

Table 3.10 Data Dictionary for Guard

Table Appointment Details

Field Name	Data Type	Description	Constraint
appt_ID	int(10)	Unique ID for the Appointment	PK, Not Null
appt_Date	varchar(20)	Appointment Date	
appt_Day	varchar(20)	Appointment Day	
appt_Time	varchar(20)	Appointment Time	
appt_Status	varchar(20)	Appointment Status	
dvr_ID	int(10)		FK
veh_ID	int(10)		FK
appt_TimeIn	timestamp()	Driver check in time	
appt_TimeOut	timestamp()	Driver check out time	

Table 3.11 Data Dictionary for Appointment Details

Table Inspection

Field Name	Data Type	Description	Constraint
inspection_ID	int(10)	Unique ID for the inspection	PK, Not Null
veh_ID	int(10)	Unique ID for the vehicle	FK
insp_prime mover(inside)	varchar(15)	Condition of prime mover(inside)	
insp_prime mover(back)	varchar(15)	Condition of prime mover(back)	
insp_trailer(under)	varchar(15)	Condition of trailer(under)	
insp_trailer(behind)	varchar(15)	Condition of trailer(behind)	
insp_trailer(left)	varchar(15)	Condition of trailer(left)	
insp_trailer(right)	varchar(15)	Condition of trailer(right)	

Table 3.12 Data Dictionary for Inspection Checklist

3.6 Proof of Initial Concept

In this section, it contains the prototype design before developing the real web-based system. This prototype has 3 user interfaces for Admin, Company and Guard.

3.6.1 Interfaces for Admin

Figure 3.15 shows the login page for the Admin, Admin need to insert their username and password to access the system functionality. Once the admin has inserted their credential details, click the login button.

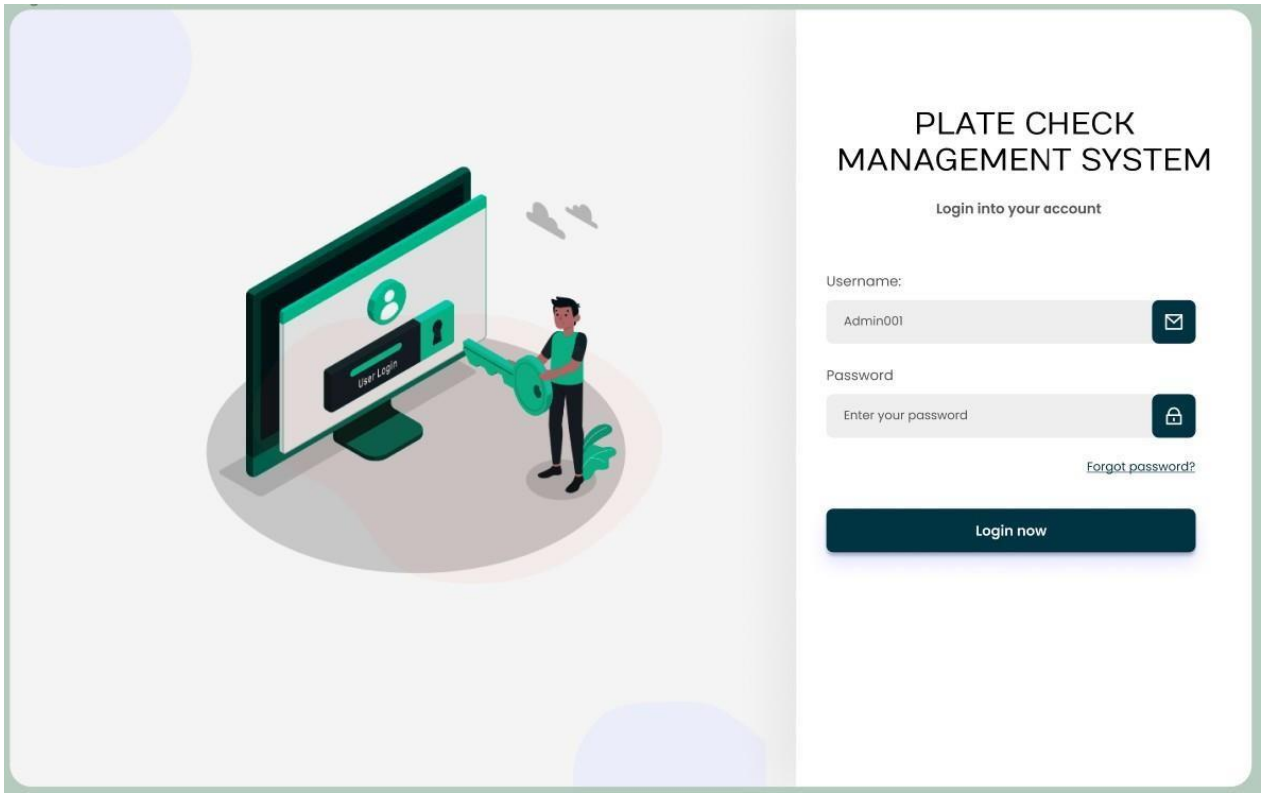


Figure 3.15 Admin login page

Figure 3.16 shows the dashboard page for admin, the dashboard contains the number of the admin and driver and also the number of vehicles that check in and check out from KANEKA Sdn. Bhd.

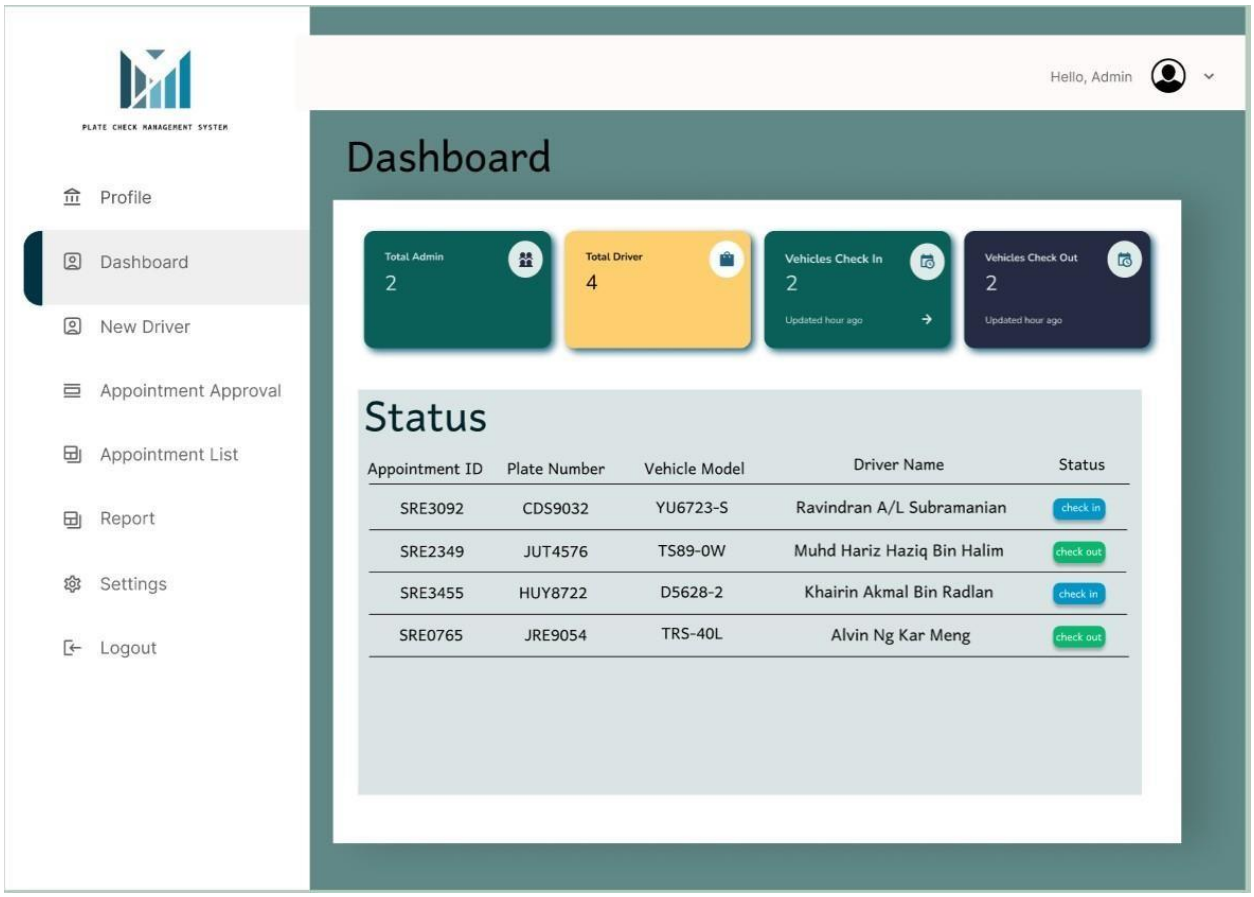


Figure 3.16 Dashboard for Admin

Figure 3.17 shows the new company registration that needs to be made by the admin. The username and password is set by the admin to prevent unauthorised company check in to the system. The recommender is the staff of KANEKA that deal with the driver to visit the plantation. After the new ID is created, admin will send the username and password to the company for login.

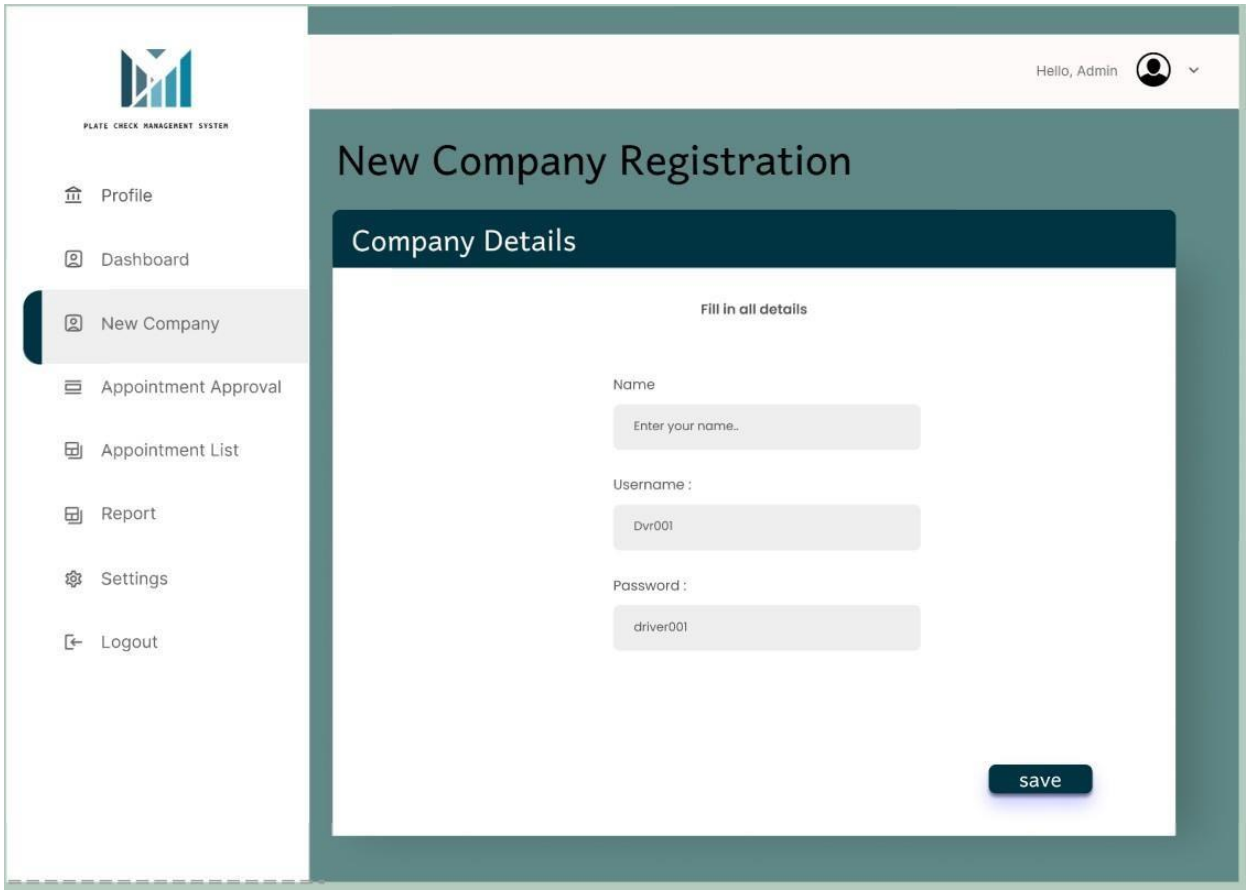


Figure 3.17. New company registration page

Figure 3.18 shows the registration list of the driver that needs to be approved by the admin, admin can view the registration details by clicking the view icon. Once the admin sees all the details, admin can click the approve or reject icon. Admin also can filter the registration by searching through the name or plate number.

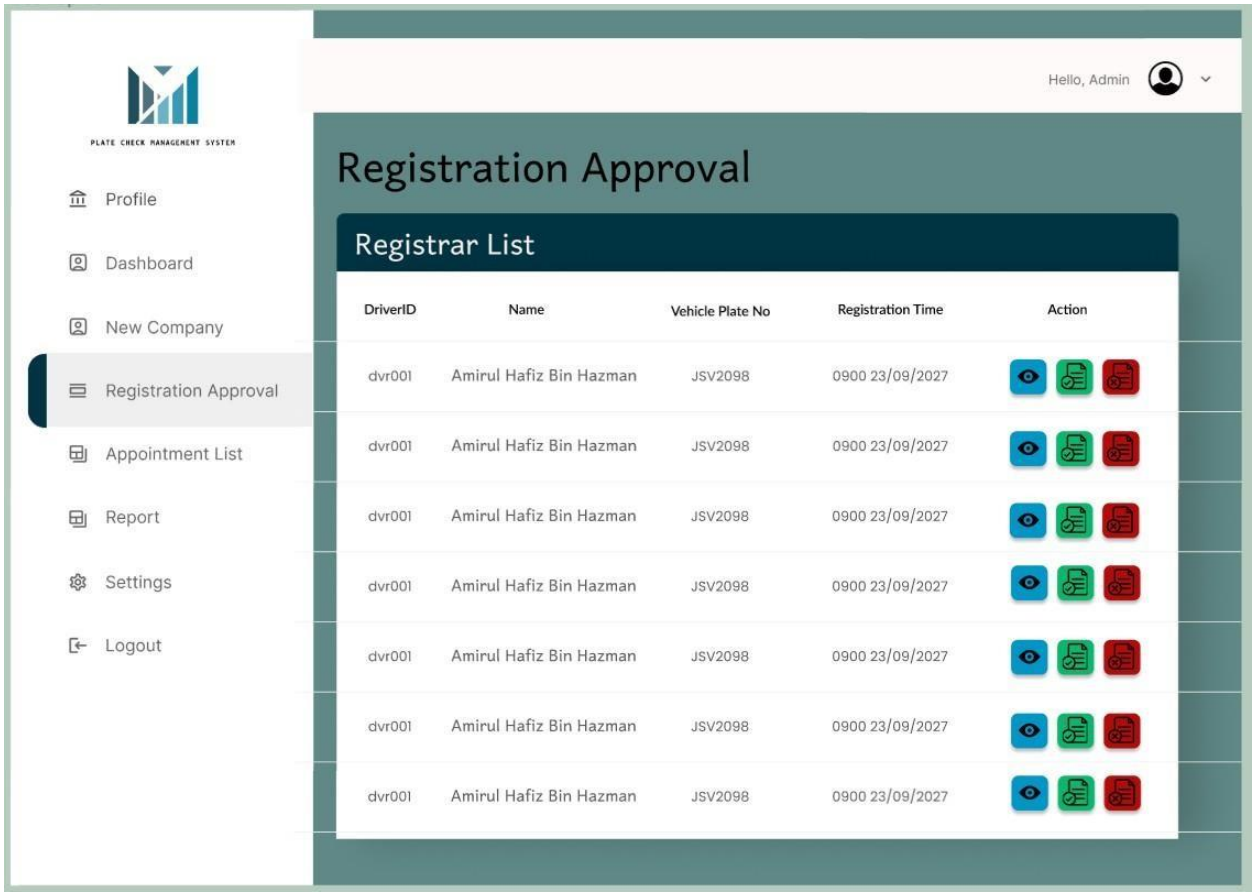


Figure 3.18 registration list page

Figure 3.19 Shows the registrar details that have been submitted by the driver. Admin can view and check all the details before approving their registration. Admin can set the blacklist status for the driver, if there is any wrongdoing made by the driver.

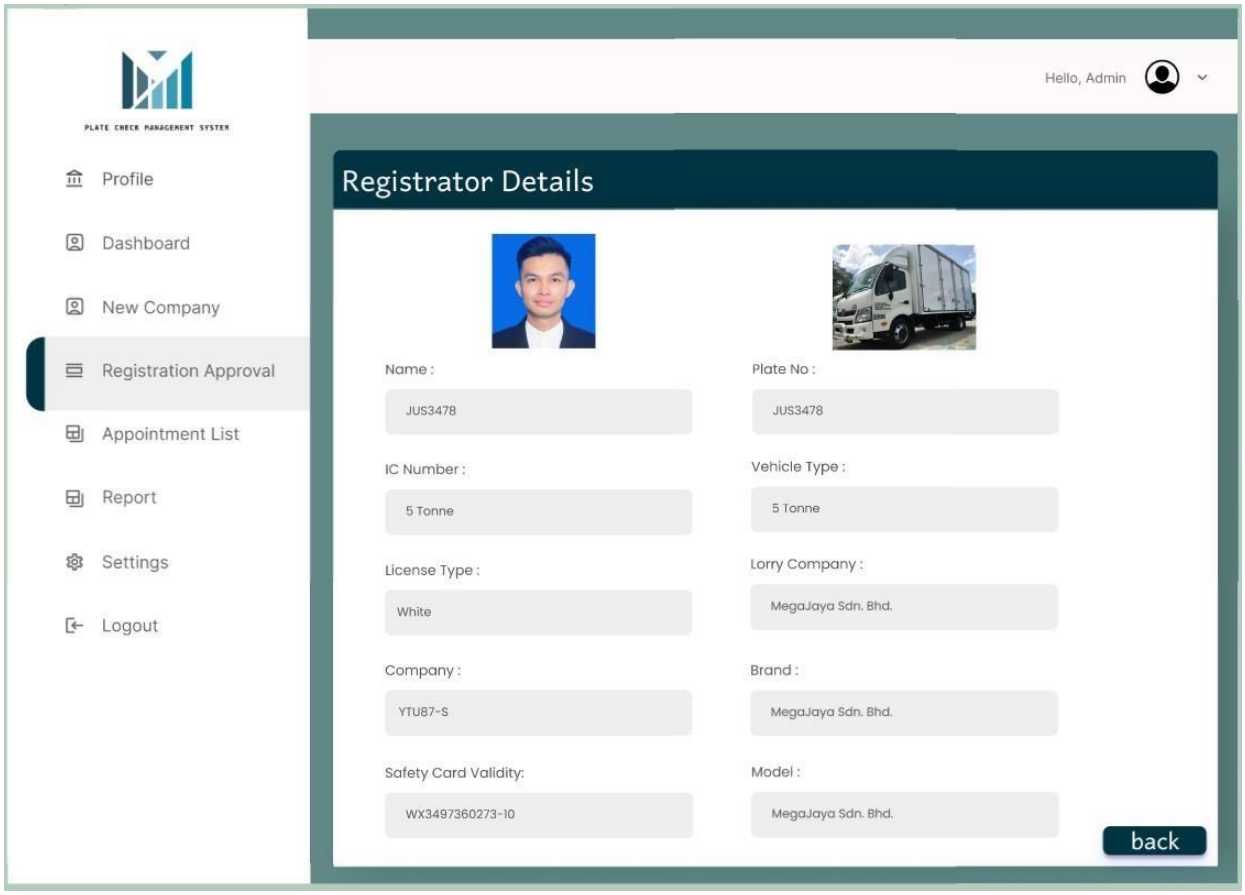


Figure 3.19 Registrator details page

3.6.2 Interfaces for Company

Figure 3.20. Shows the login page for the company. Company staff need to fill in the username and password that has been provided by the admin. When the staff fills in all the details, click the login button.

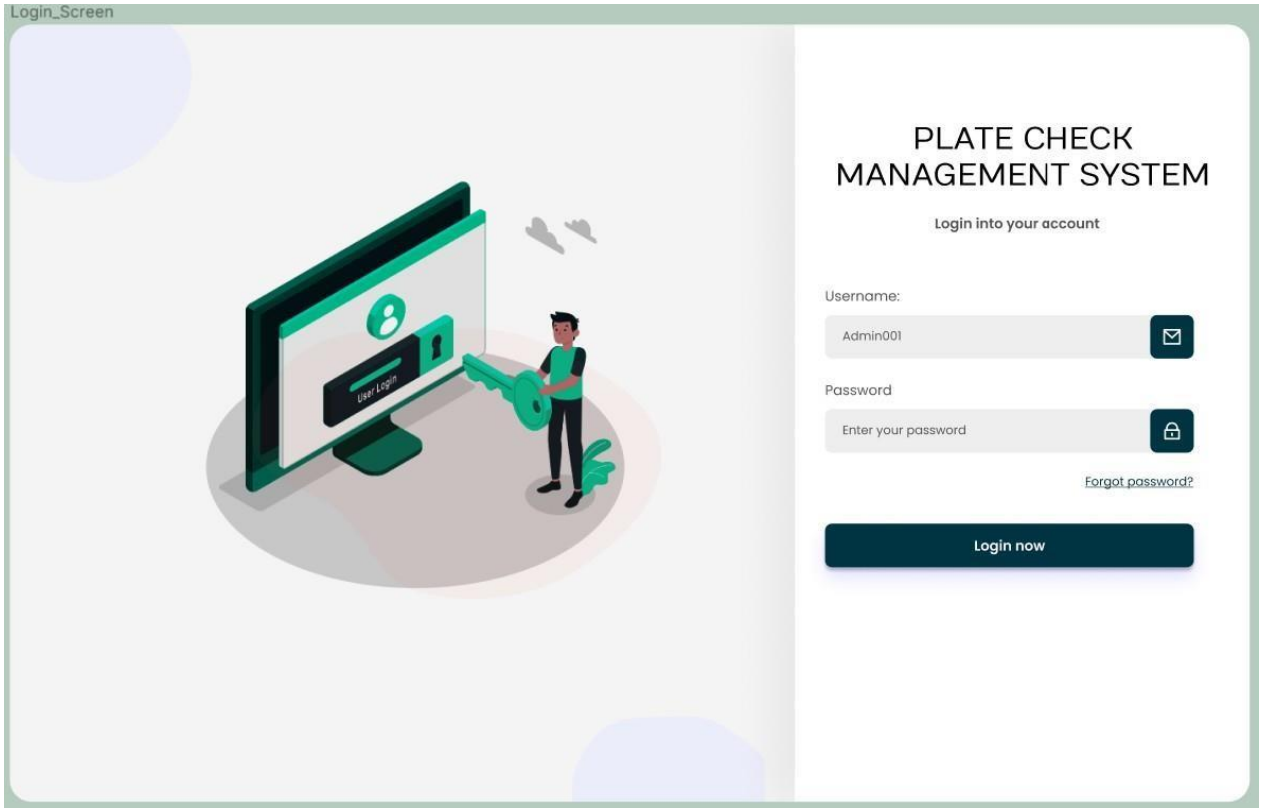


Figure 3.20 login page for Company

Figure 3.21 shows the driver registration details that need to be filled in by the company staff. Staff required to insert all the details in the text box provided. Staff need to upload the photo oftheir driver face, which will be used during the check in process at the guard house.

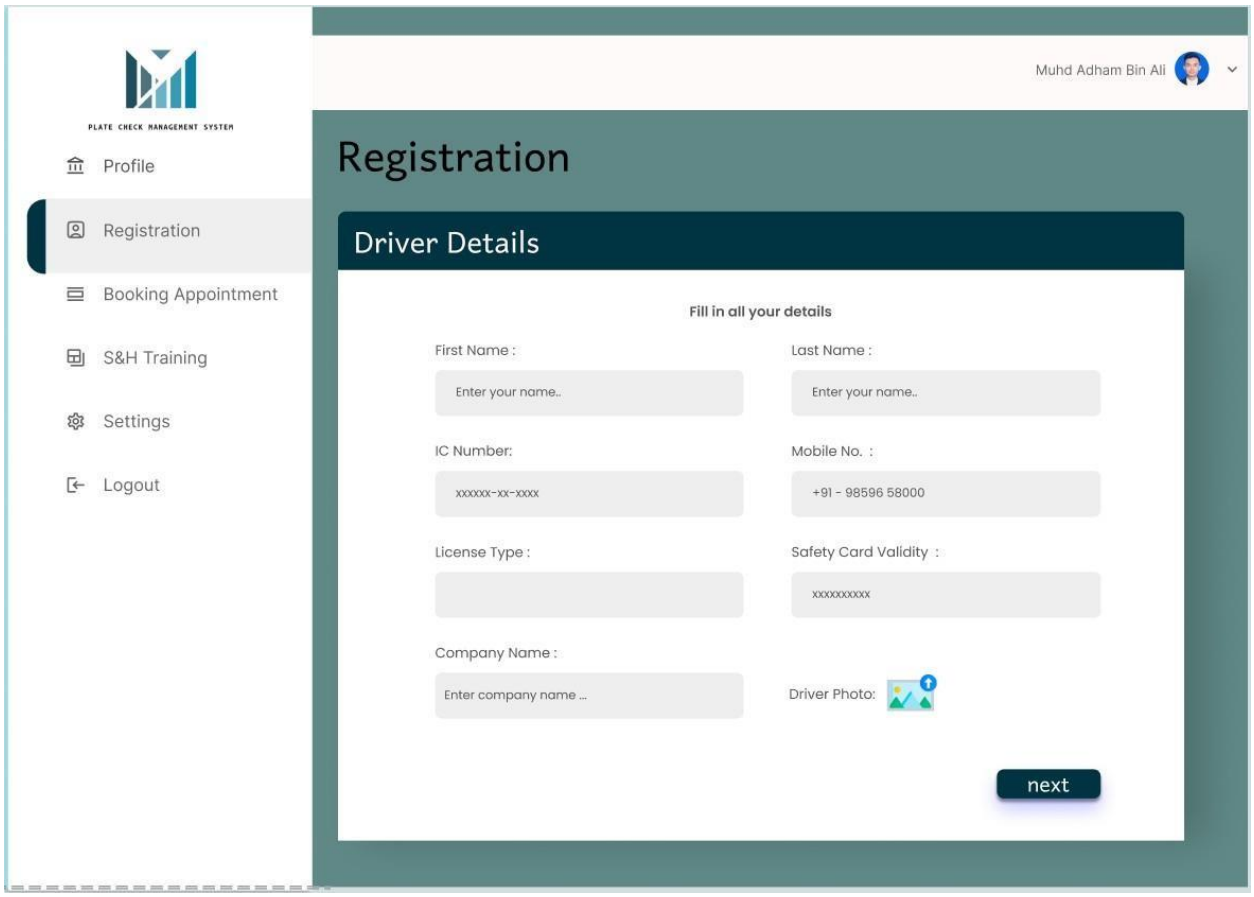


Figure 3.21. Driver details registration page

Figure 3.22 Shows the vehicle details registration. The company staff also need to register the vehicle details. The staff need to fill in all the details required and upload the photo of the vehiclethat will be used during the check in process. After all the details are filled in, staff can click the submit button.

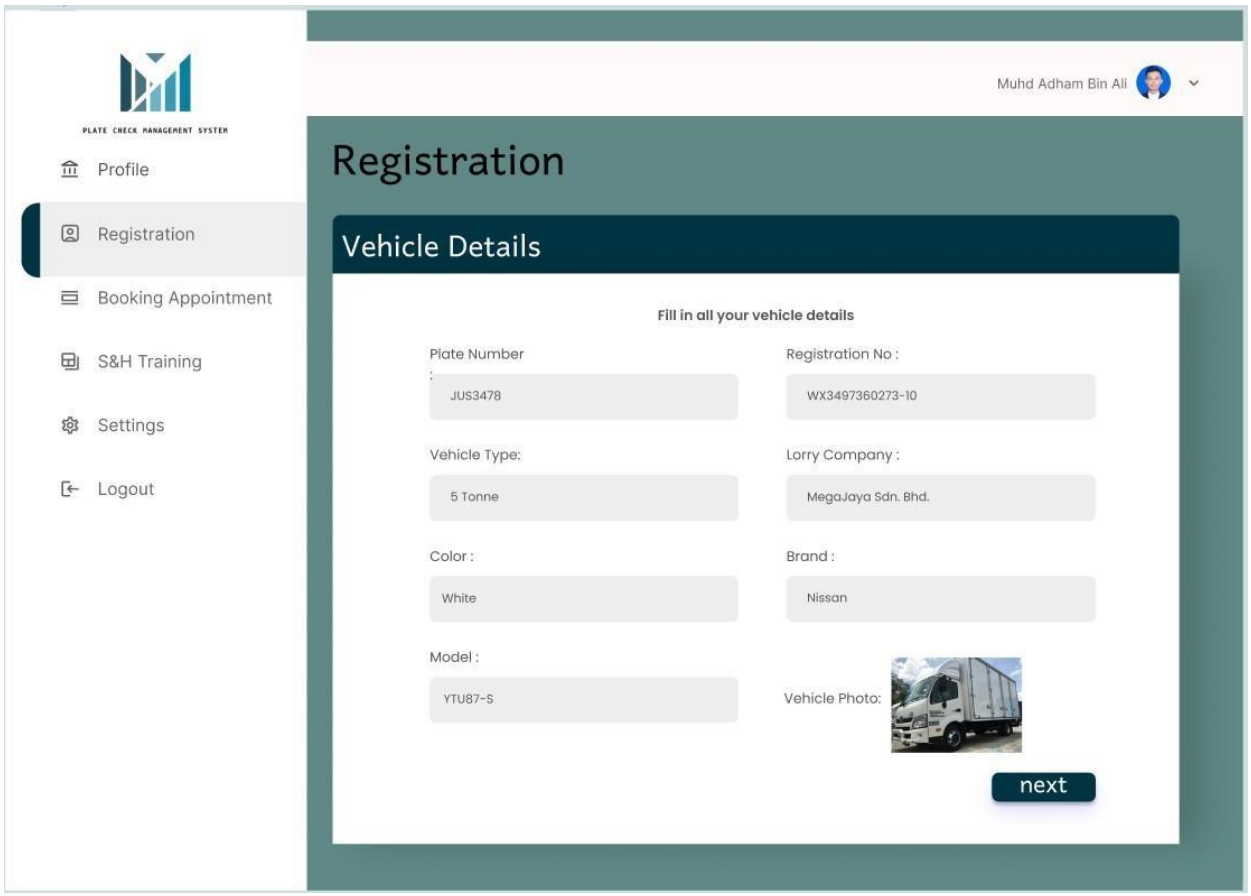


Figure 3.22 Vehicle details registration

Figure 3.23 shows the booking appointment page. The company staff can manage the visitation once their driver and vehicle registration are approved by the admin. The company staff can choose the date and time of the visitation to the KANEKA Sdn. Bhd.

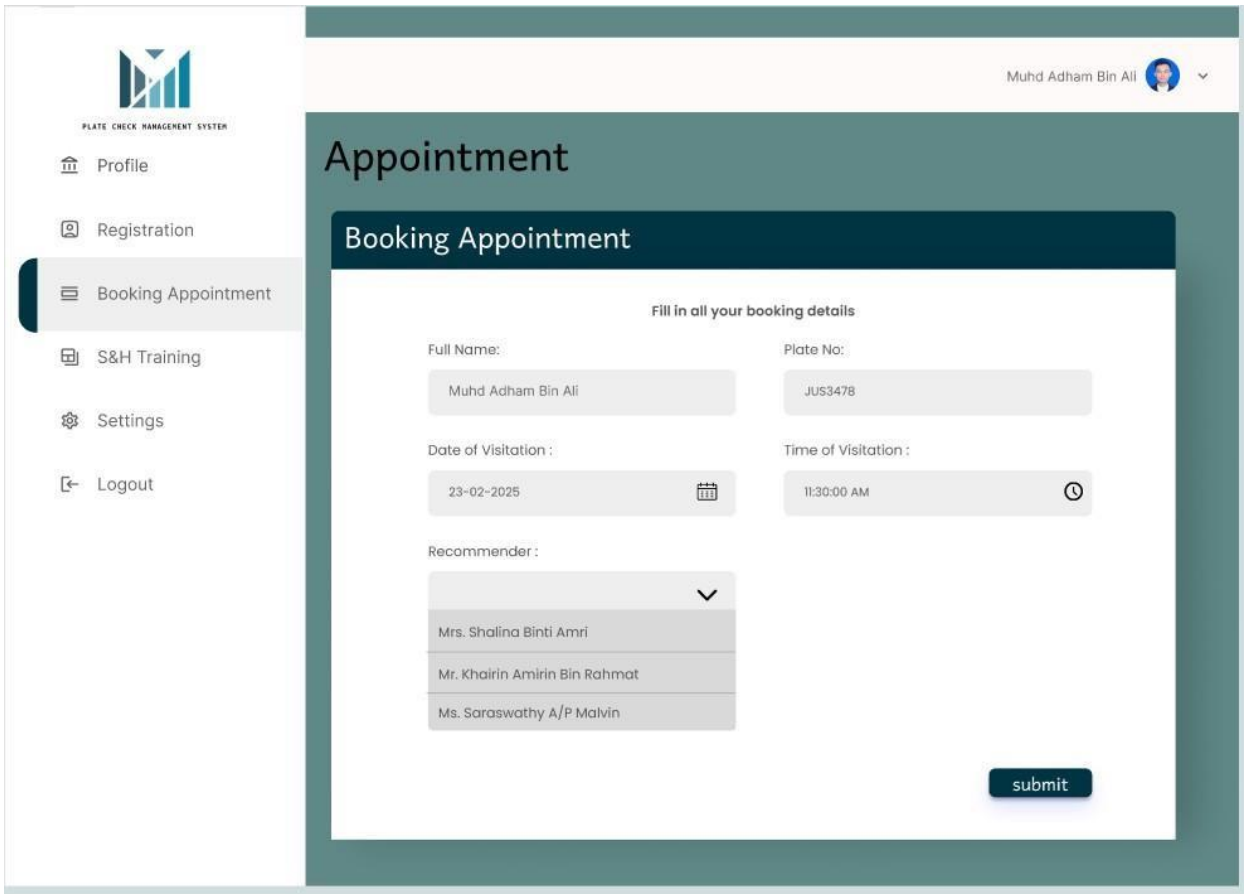


Figure 3.23 Booking appointment page

3.6.3 Interfaces for Guard

Figure 3.24 shows the login page for the guard. The guard need to fill in the username and password in order to have access to the system.

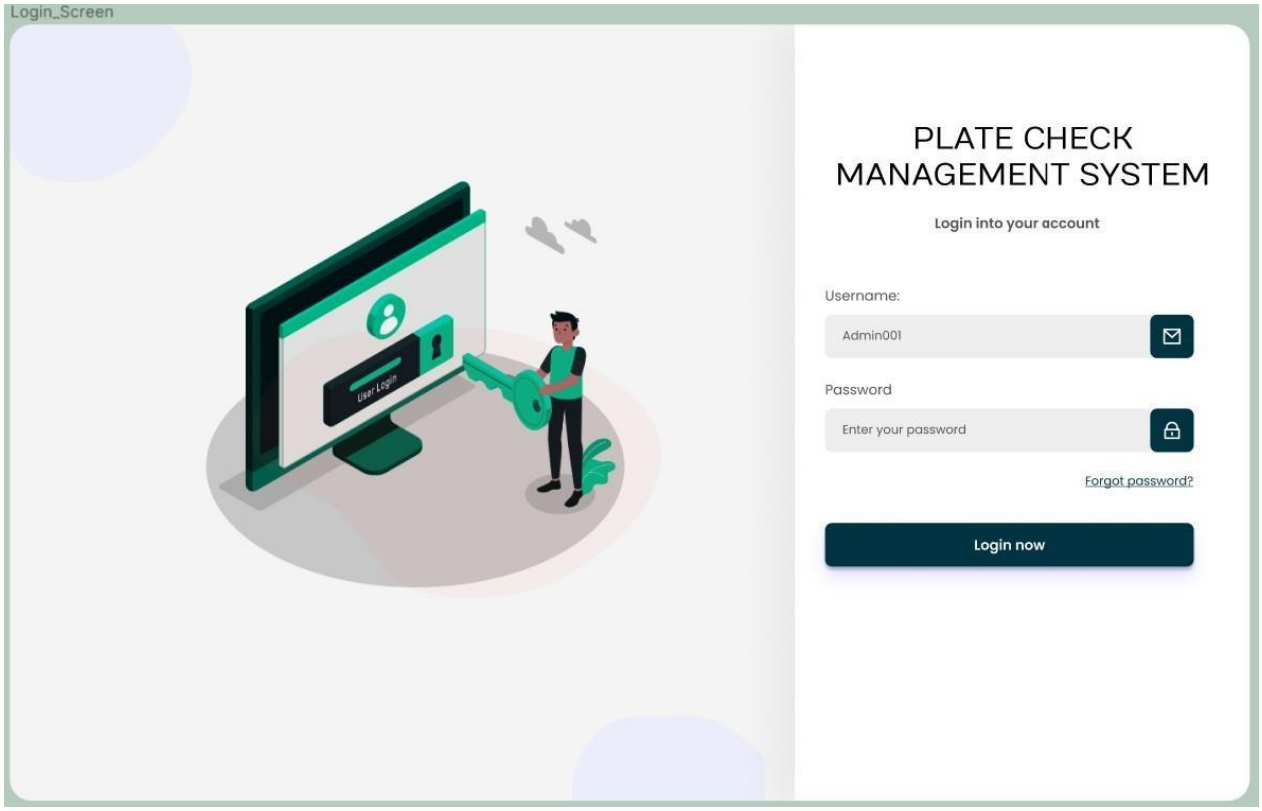


Figure 3.24 Login page for Guard

Figure 3.25. Shows the visitation approval that needs to be checked by the guard before allowing them to enter the plantation. The time of check in or check out of the driver will be recorded in a real time update. Guard can view the details by clicking the view button.

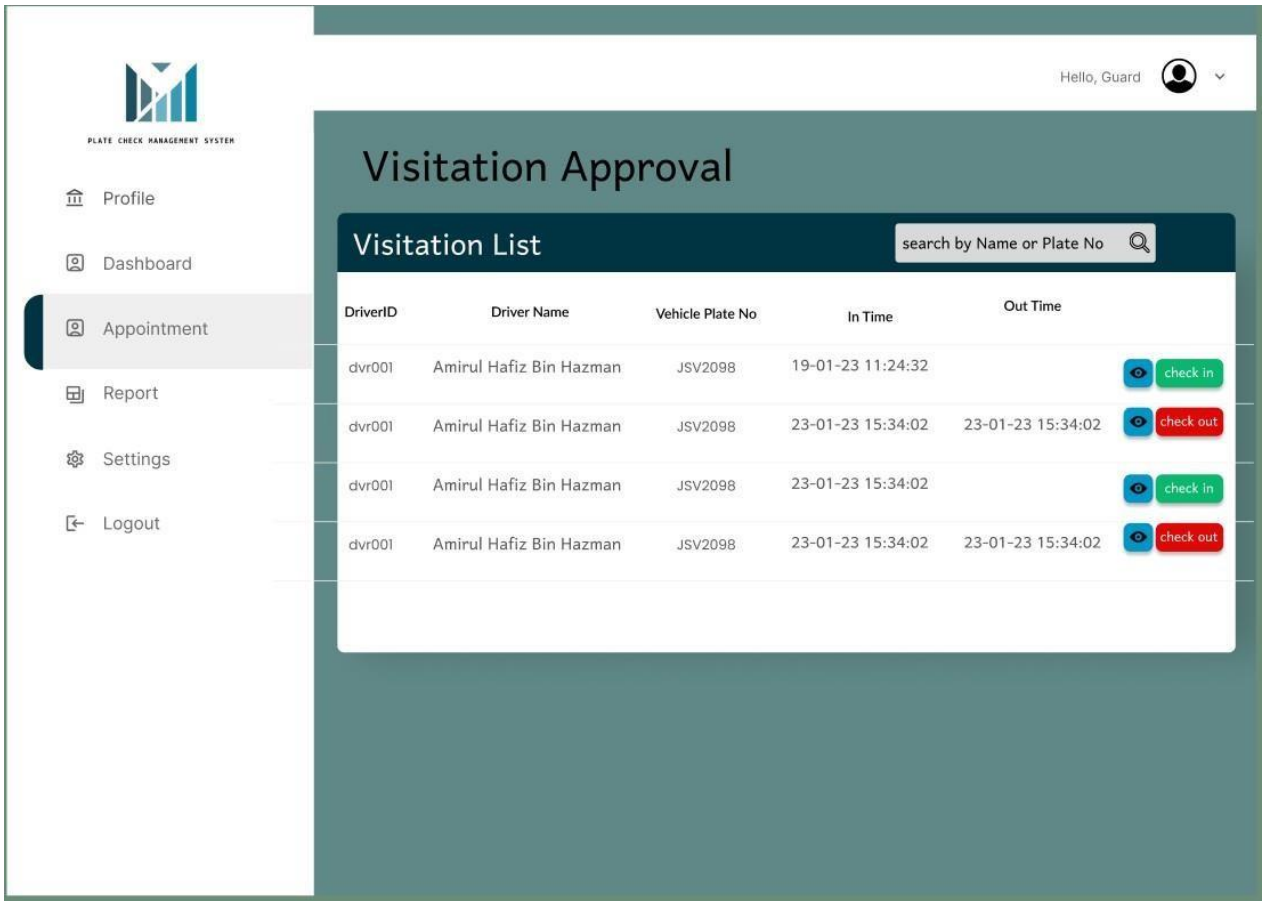


Figure 3.25 visitation approval page

Figure .3.26 shows the visitor verification for the guard to check. During the check in process, guard need to ensure that all the details shown in the system are tally with the details provided bythe driver. After all the details have been checked, the driver needs to leave their phone at the guard house so that the guard will allow them to enter the manufacturing plant.

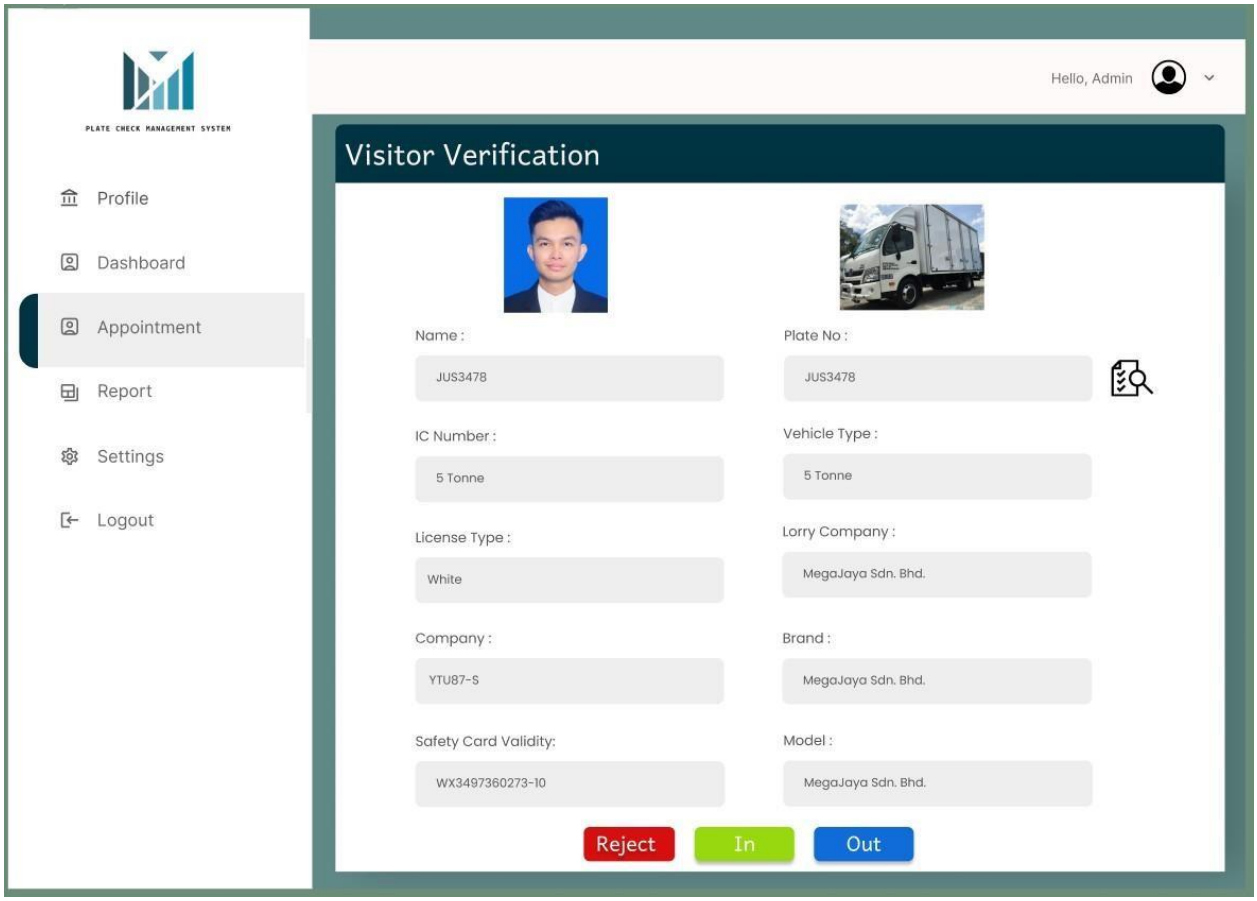


Figure 3.26 visitor verification page

Figure 3.27 shows the vehicle inspection checklist for the guard to check. By clicking the checklist button next to the vehicle details above, it will redirect to the inspection checklist that needs to be filled in by the guard. Once all the inspection is done with no issue, guards can save the details and allow the vehicle to enter the manufacturing plant.

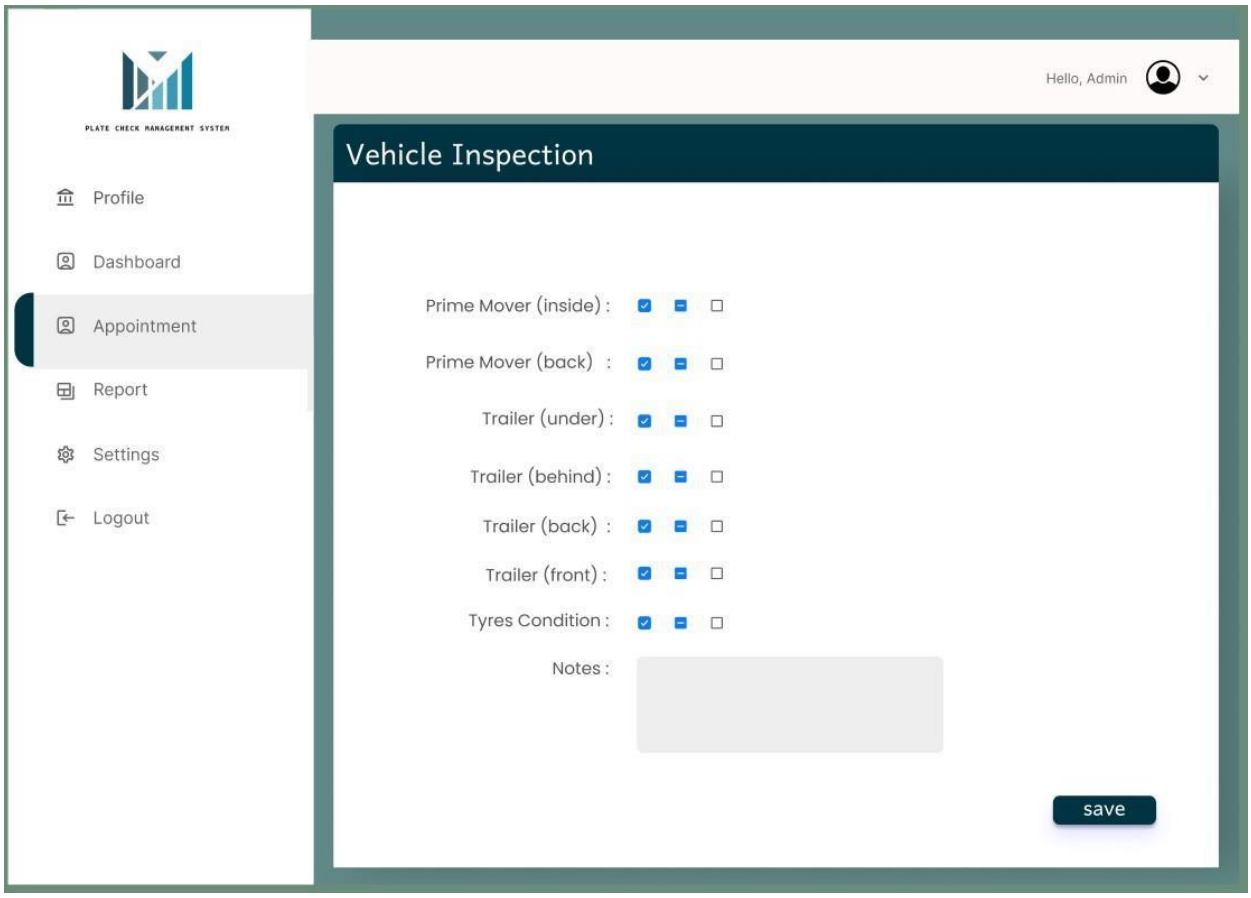


Figure 3.27 vehicle inspection page

3.7 Testing/Validation Plan

After the implementation phase, the testing plan will be carried out to ensure that the system complies with the requirements and is capable of achieving the system's objective. The testing of the Plate Check Management System will be done by the user which is Kaneka Sdn. Bhd. The User Acceptance Test (UAT) format that can be completed by the user is shown below.

3.7.1 User Acceptance Testing

No.	Module	Activity	Status		Comment
			Yes	No	
1	Login and registration	Admin can login to the system			
2		Admin can create username and password for driver			
3		Guard can login to the system			
4		Company can login to the system			
5	Manage Vehicle Details	Add driver details			
6		Edit driver details			
7		Delete driver details			
8		View driver details			
9		Add vehicle details			
10		Edit vehicle details			
11		Delete vehicle details			
12		View vehicle details			
13	Manage appointment	company able to add appointment			
14		Company able to edit			

		appointment			
15		Company able to delete appointment			
16		Company able to view appointment details			
17	Manage report	Admin are able to view record			
18		Admin are able to export record			
17	Manage arrival	Guard is able to view vehicle details			
18		Guard is able to reject or approve vehicle			

Table 3.13 User Acceptance Testing Form

User Acceptance Approval

	Name	**Date**
Verified By: _____ **Developer**		
Approved By: _____ **Client**		

3.8 Potential Use of Proposed Solution

This Vehicle Check-in Check-out Management System (VCCMS) is developed for Kaneka Malaysia Sdn. Bhd. to ease the check in process of vehicles to enter the manufacturing plant. Previously, the check in process was running manually so this system was made automated to focus on the vehicle management of handling the vehicle check in and check out process. By introducing this system, it can solve several problems. The Vehicle Check-in Check-out Management System (VCCMS) can decrease some problems such as the damage or loss of the record that is written on the logbook. This system will store all the details of the users into the database and can easily be retrieved through the system. Other than that, this system will allow the driver to make an early registration and set the visitation date and time process before attending the manufacturing plant. By that, it will lessen the time taken at the security guard house to check the vehicle before allowing them to enter the plant.

3.9 Gantt Chart

Figure below shows the Gantt Chart of the Vehicle Check-in Check-out Management System (VCCMS). The Gantt chart is crucial for project development because it helps to identify completion dates for tasks and makes sure that all plans revolve around deadlines.

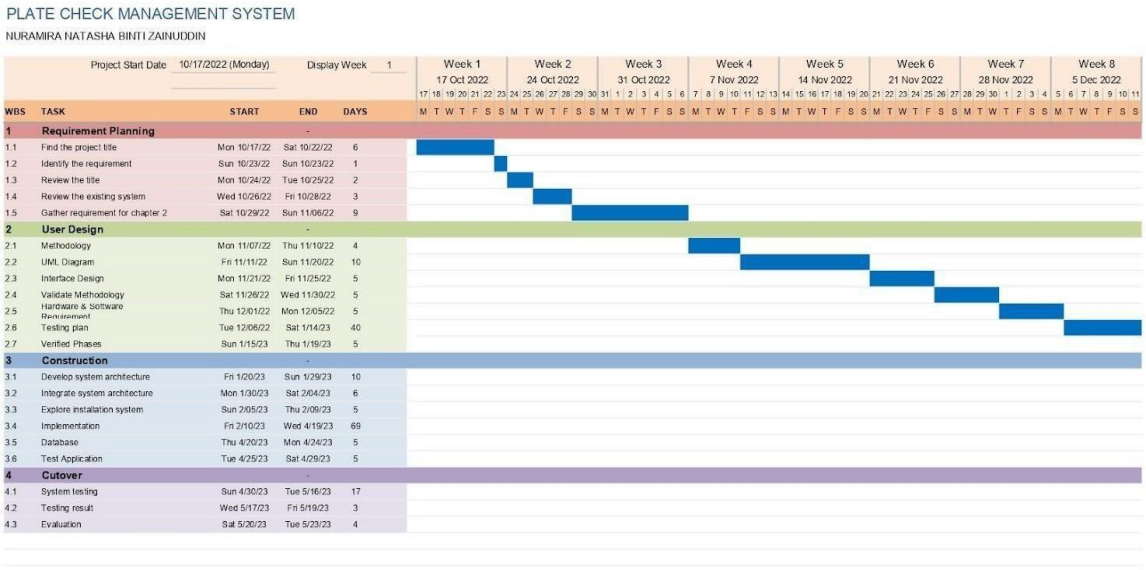


Figure 3.28 Gantt Chart VCCMS (1)

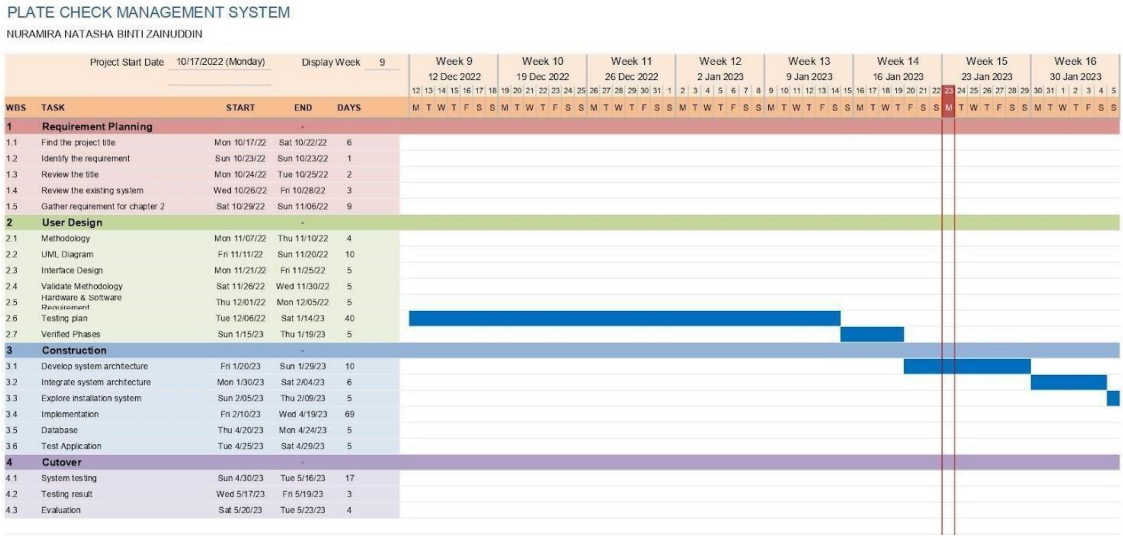


Figure 3.29 Gantt Chart VCCMS (2)

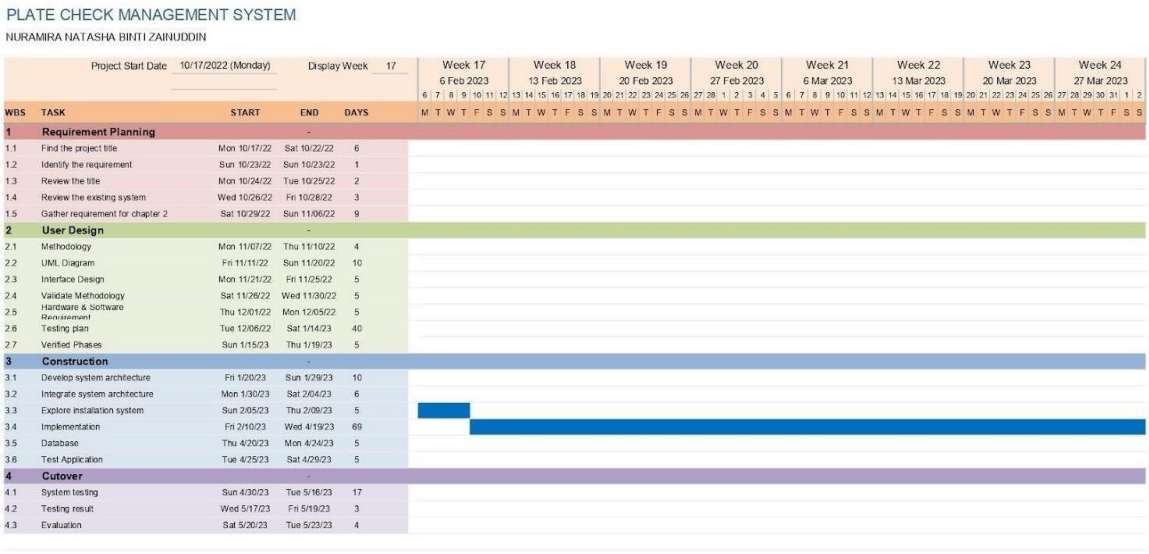


Figure 3.30 Gantt Chart VCCMS (3)

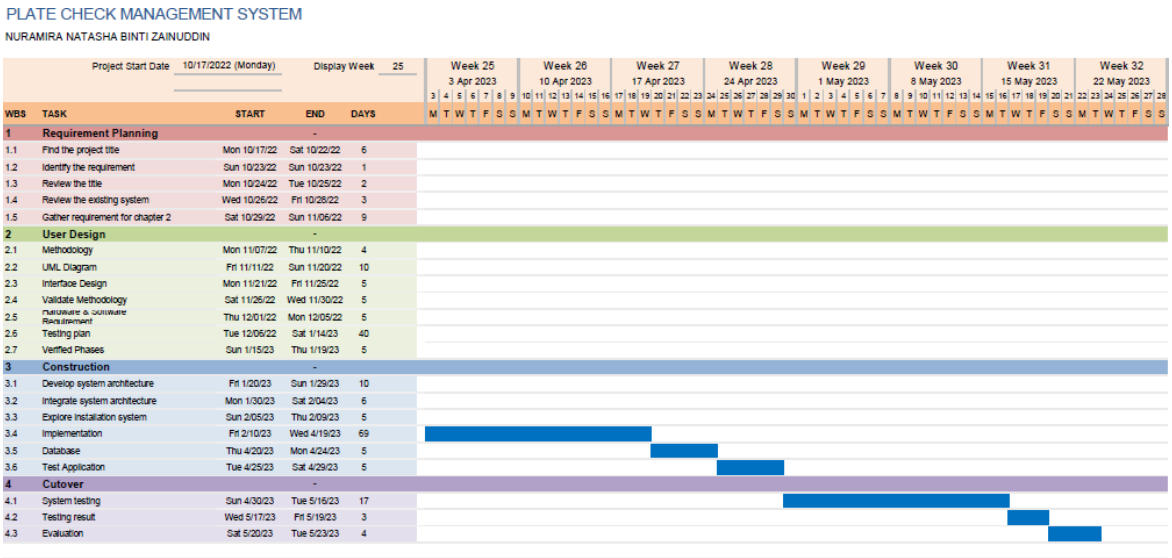


Figure 3.31 Gantt Chart VCCMS (4)

CHAPTER 4

IMPLEMENTATION, RESULT AND DISCUSSION

4.1 Introduction

Chapter 4 will discuss developing, implementing, and testing the Vehicle Check-in and Check-out Management System (VCCMS). This web-based system is developed to easily manage the vehicles coming to KANEKA Sdn. Bhd. to deliver goods or products. The changes from manual to automated systems are to streamline the process of tracking vehicles within an organization. The system allows for efficient vehicle usage tracking, including check-in and check-out times, user information, and vehicle inspection records. The system reduces manual efforts and errors and increases transparency with real-time updates. The system is user-friendly, secure, and customizable to meet the organization's specific requirements. XAMPP, MySQL, andVisual Studio Code are a list of software used to develop this system. The languages used to develop this system mainly use PHP, HTML, and W3 CSS.

4.2 Development Tools

Table below describes the purpose of each software and language used in developing the VCCMS.

Tools	**Purpose**
XAMPP	Provide a local server which acts as an actual web server to VCCMS
MySQL	Manage databases and server of VCCMS
Visual Studio Code	Platform to develop coding for VCCMS

Table 4.1 Tools used and the purpose in developing the VCCMS

Language	Purpose
PHP	The code used to design a dynamic web page and contents for VCCMS
HTML	The code used to structure a web page and contents for VCCMS
w3.CSS	A CSS framework with built-in responsiveness that used to style and layout web pages for VCCMS

Table 4.2 Language used and the purpose in developing the VCCMS

4.3 Implementation Process

The implementation process is to record all the steps in developing the Vehicle Check-in and Check-out Management System (VCCMS). This web-based system has three users: the company, the staff and the guard. The implementation of VCCMS will be described in detail in the next paragraph.

4.3.1 Creating Database

XAMPP provides a local project server and a system database. XAMPP was chosen for this project because it supports the PHP programming language that is used for server-side scripting. In addition, XAMPP provides a MySQL database management service through the PhpMyAdmin interface. Figure XXX shows the database in the PhpMyAdmin interface of the project.

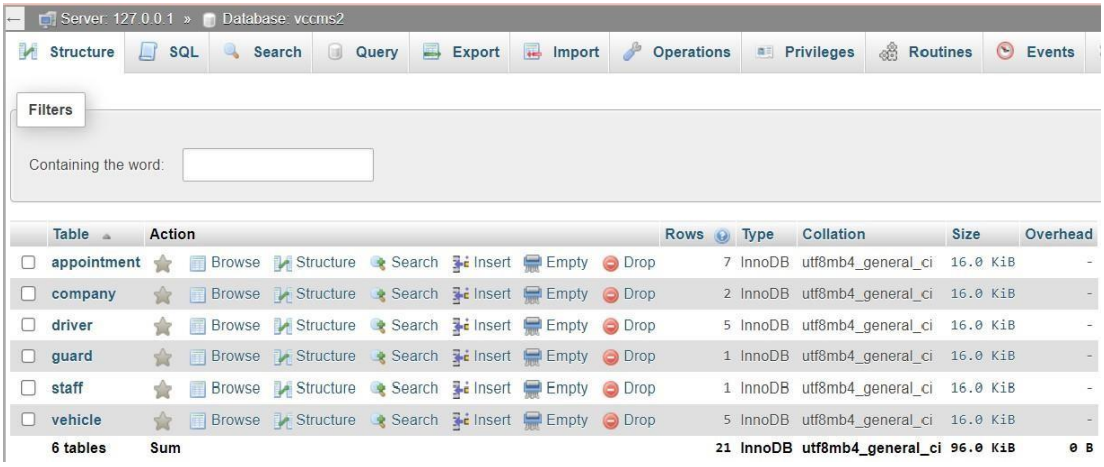


Figure 4.1 Database of VCCMS

4.3.2 Connection between the local server and PHP

Figure 4.2 shows a source code to connect between the local server and PHP using localhost with root username.

database.php

```php
<?PHP

    date_default_timezone_set('Asia/Kuala_Lumpur');

    if($_SERVER['HTTP_HOST']=="localhost" or $_SERVER['HTTP_HOST']=="192.168.0.171")
    {
        //localhost
        $dbHost = "localhost";  // Database host
        $dbName = "vccms2";     // Database name
        $dbUser = "root";       // Database user
        $dbPass = "";           // Database password
    }
    else
    {
        //local live @ hosting
        $dbHost = "";       // Database host
        $dbName = "";       // Database name
        $dbUser = "";       // Database user
        $dbPass = "";       // Database password
    }

    $con = mysqli_connect($dbHost,$dbUser,$dbPass,$dbName);

```

Figure 4.2 Connection between the local server and PHP

4.3.3 Development of VCCMS

4.3.3.1 Login

Firstly, figure 4.3 shows the main interface when users enter the system. Users can click three buttons according to their user type: company, staff or guard. Figure 4.4 shows the interface for the user to insert their username and password to access the system functionality. Different users will redirect to their page based on their user type.

Figure 4.3 Main Interface of the System

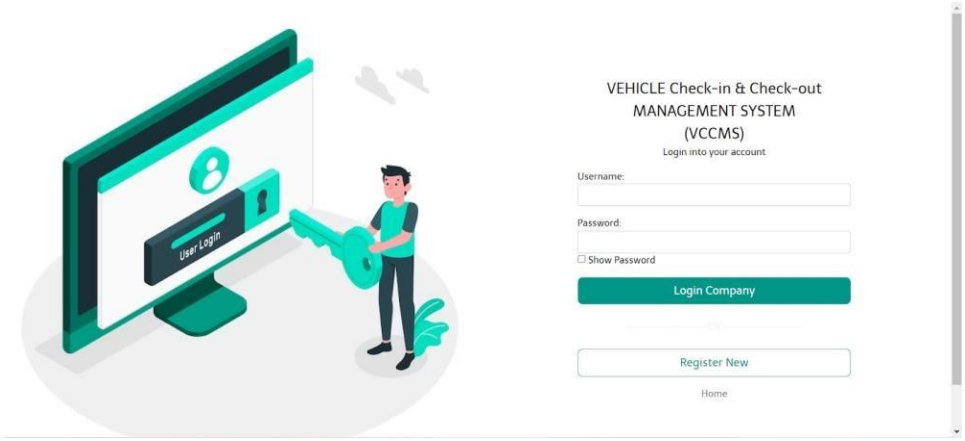


Figure 4.4 Example of the login page

4.3.3.2 Company Page

Figure 4.5 shows the login page for the company. Users must insert their username and passwordand click login to access the system.

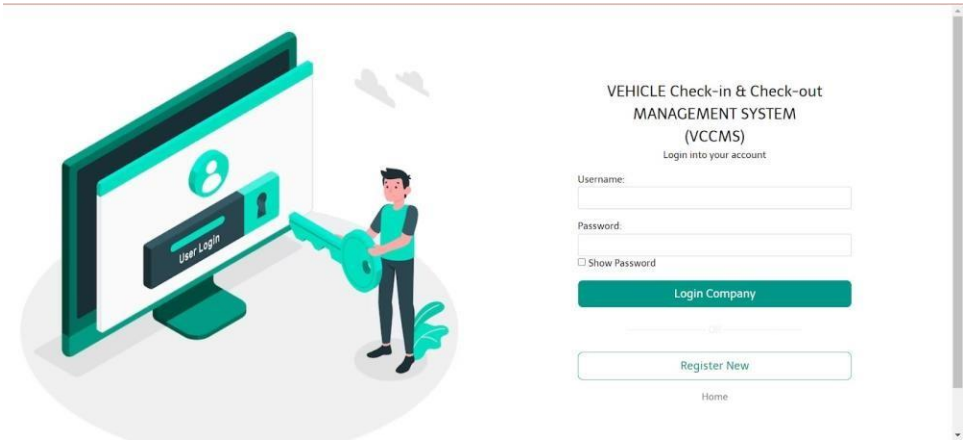


Figure 4.5 Login page for Company user

Figure 4.6 shows the dashboard page for the company. This page provides the user with the total of vehicle and driver that has been registered into the system—also the total of appointments thatthe company has made. The right-side navigation bar provides links to help the user navigate the system. The dropdown menu for Company is for the user to create or update the company detailsand create a new vehicle and driver for the company.

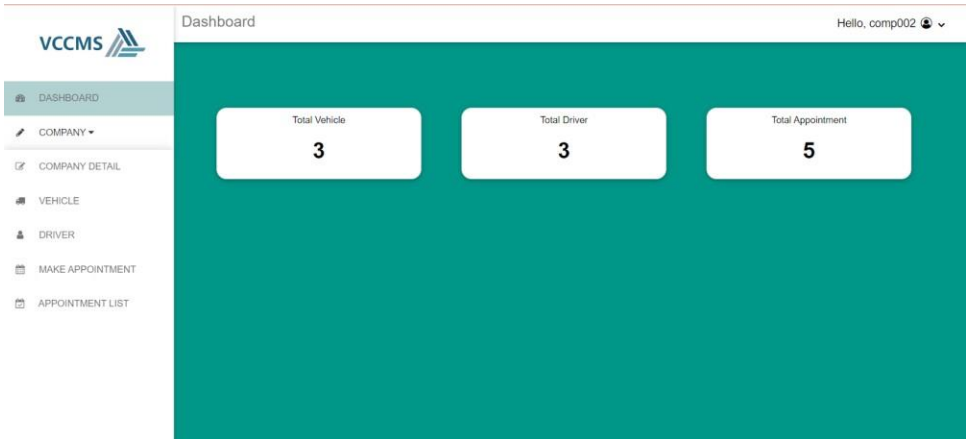


Figure 4.6 Dashboard for Company

Figure 4.7 shows the company menu for users to update their company details.

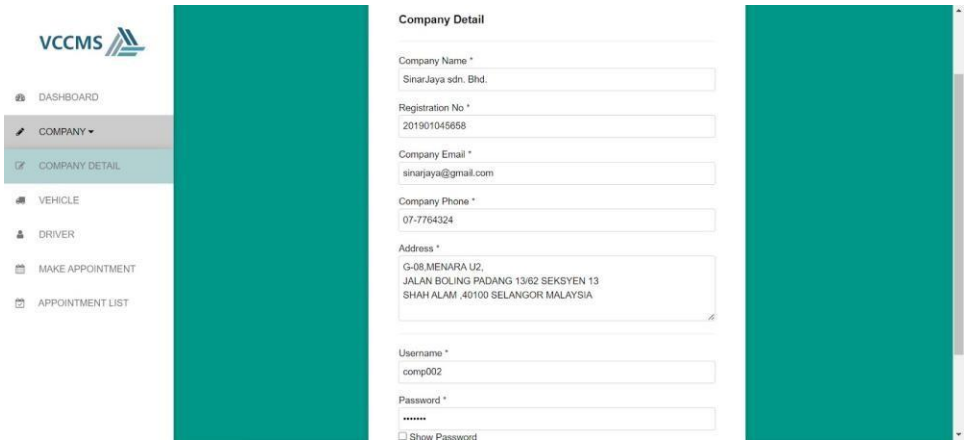


Figure 4.7 Company Details Interface

Figure 4.8 shows the vehicle menu for users to view the list of vehicles added to the system. Users can click the '+Add Vehicle' button to add a new vehicle along with the details. Two action buttons are provided for the user to update or delete the vehicle information. Figure 4.9 shows the pop-up box to fill in all the vehicle details. After done user can click submit button, and all the details will automatically be updated in the table.

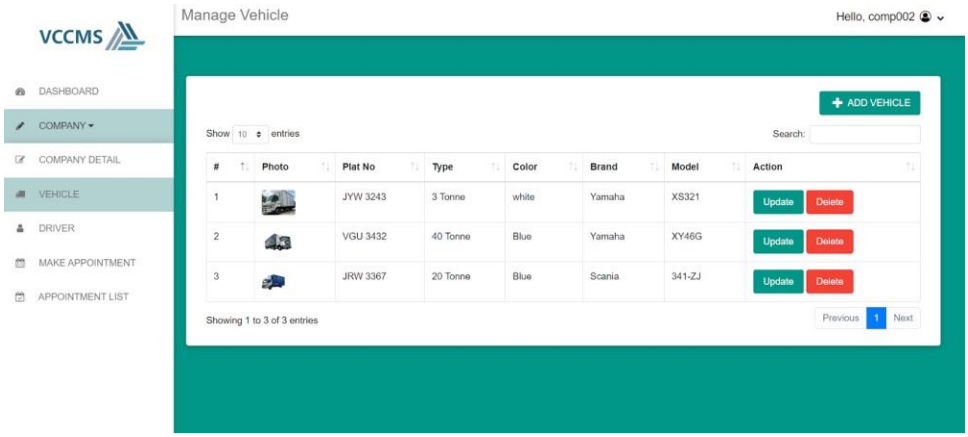


Figure 4.8 Manage Vehicle Interface

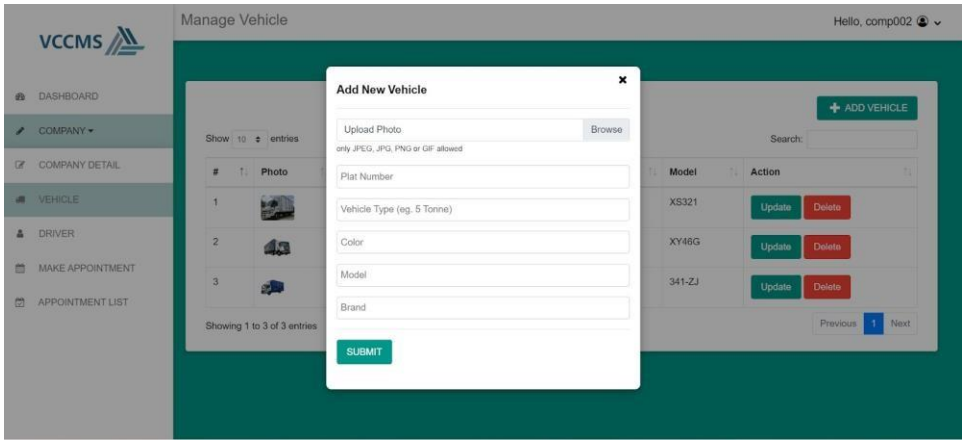


Figure 4.9 Add New Vehicle Interface

Figure 4.10 shows the driver menu for the user to manage and view the list of drivers added to the system. Users can click the '+Add Driver' button to add new drivers and their with details. Two action buttons are provided for the user to update or delete the driver information. Figure 4.11 shows the pop-up box to fill in all the driver details. After done user can click submit button, and all the details will automatically be updated in the table.

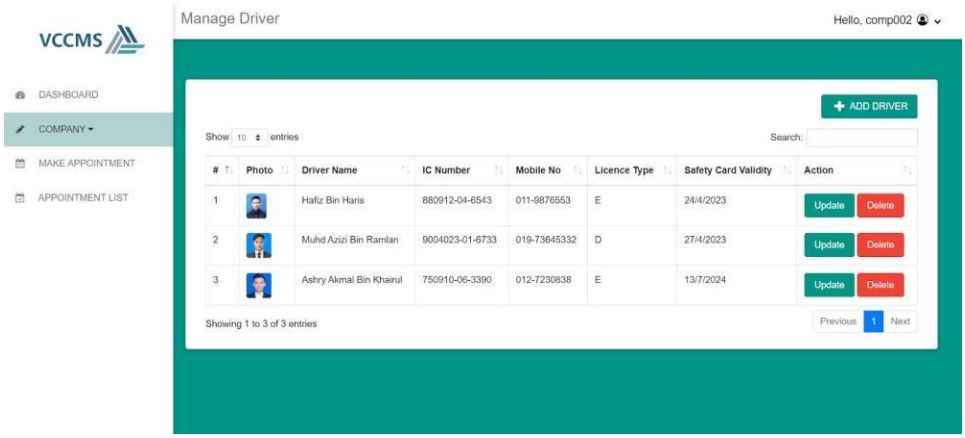


Figure 4.10 Manage Driver interface

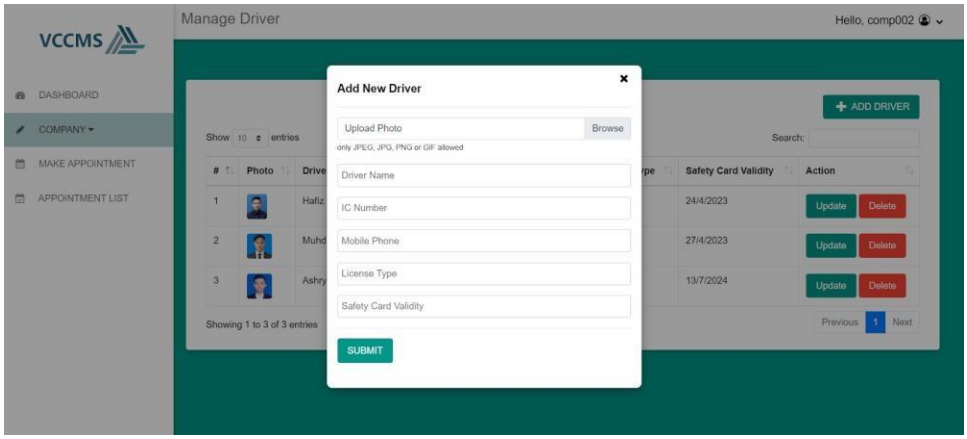


Figure 4.11 Add New Driver Interface

Figure 4.12 shows the interface for users to make an appointment to deliver goods or products. Users need to choose the date and time of delivery. The dropdown list of vehicles and driverswill be available based on the registration that has been made. Then, the user also can choose Delivery Order (DO) form that is in PDF or JPG format only can be uploaded and then click submit. Figure 4.13 shows the list of appointment that has been made, at the last column of the table shows the status of the appointment, which can be pending, approved, or rejected. Thestatus of the appointment will be automatically updated when staff change the status.

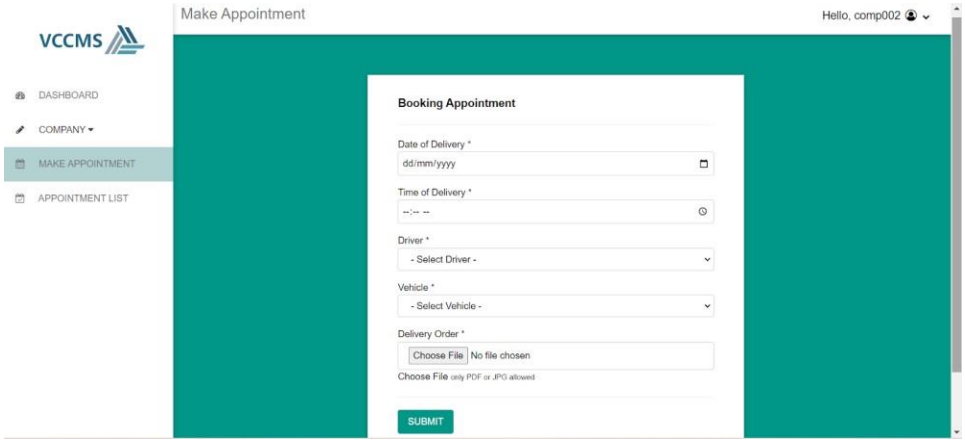


Figure 4.12 Booking Appointment interface

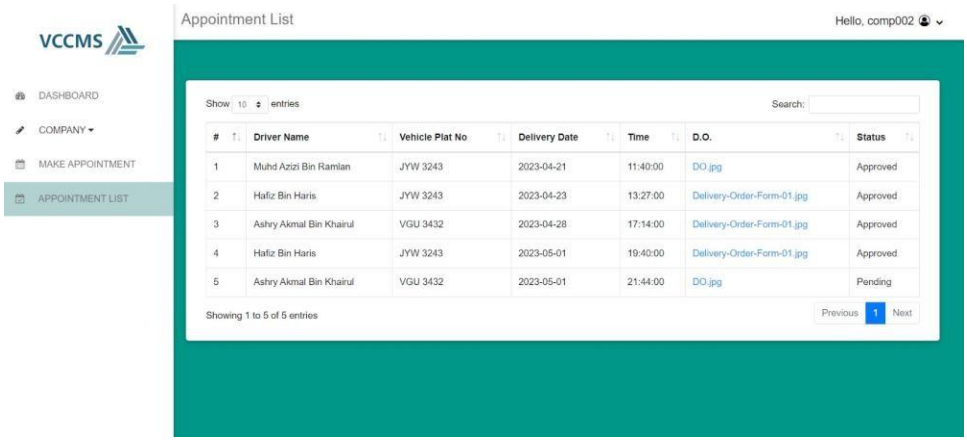


Figure 4.13 Appointment List interface

4.3.3.3 Staff Page

Figure 4.14 shows the login page for the staff. Users must insert their username and password and click login to access the system.

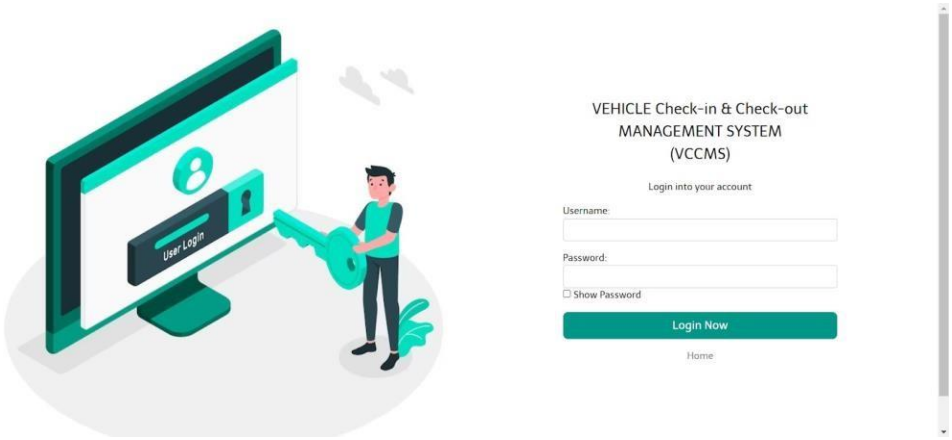


Figure 4.14 Login Interface for Staff

Figure 4.15 shows the dashboard page for the staff. This page provides the user with the total of appointments the company has made and the total of appointments that are approved or rejected. The right-side navigation bar provides a list of links to help the user navigate. The dropdown menu of Appointment contains appointment approval for the user to approve or reject the appointment submitted by the company and an appointment list for the user to view all appointments made by the company.

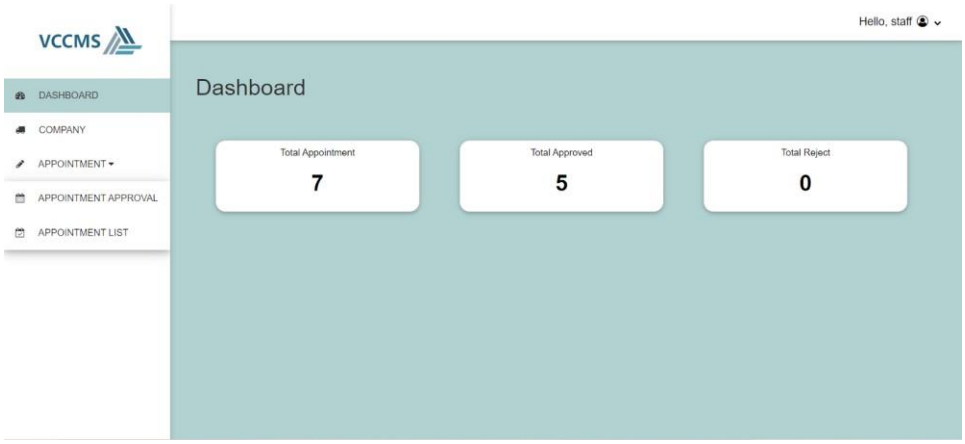


Figure 4.15 Dashboard for Staff

In Figure 4.16, the company menu will show all the companies already registered to the system. Staff can view the company details by clicking the view button.

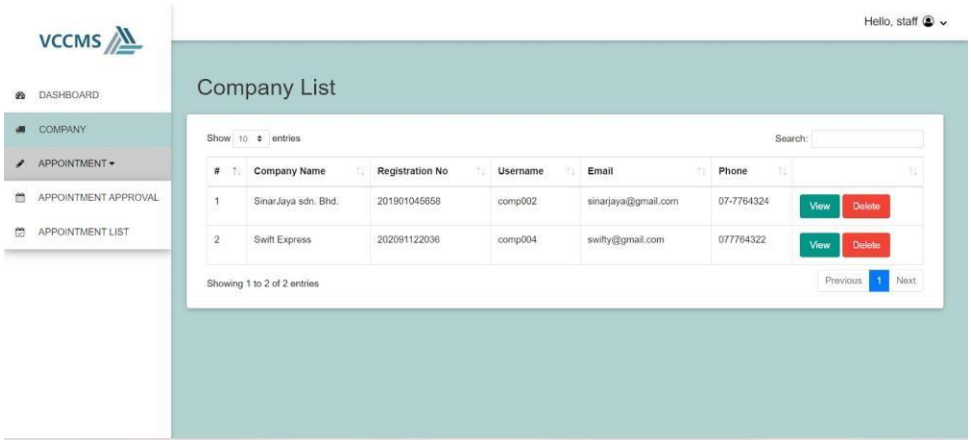


Figure 4.16 Company List interface

In Figure 4.17, the appointment approval page, all new delivery appointments will appear here. Staff can approve or reject the delivery appointment. Figure 4.18 shows the appointment list, which it displays all the appointment list that the company and the appointment status havemade.

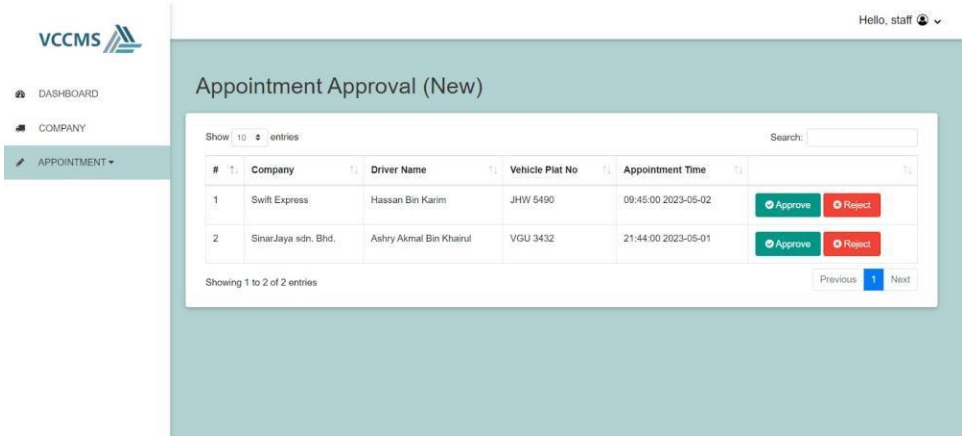


Figure 4.17 Appointment approval interface

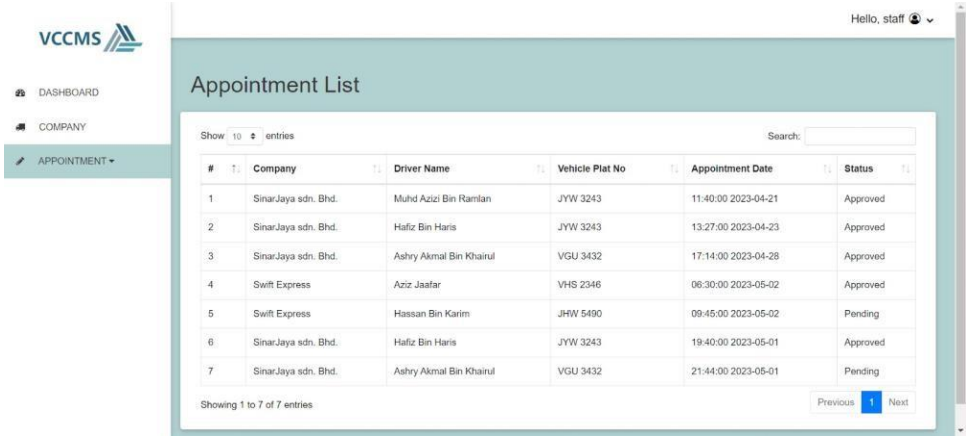


Figure 4.18 Appointment List interface

4.3.3.4 Guard page

Figure 4.19 shows the login page for the guard. Users must insert their username and password and click login to access the system.

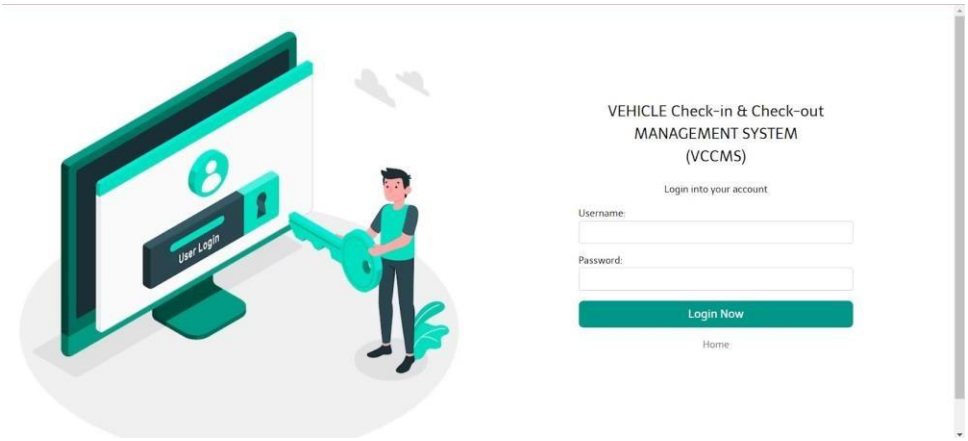


Figure 4.19 Guard Login page

In this Figure 4.20 shows the visitation approval for a guard. Guard can manage the approval by clicking the button reject, check in or check out before allowing the vehicle to enter the manufacturing plant.

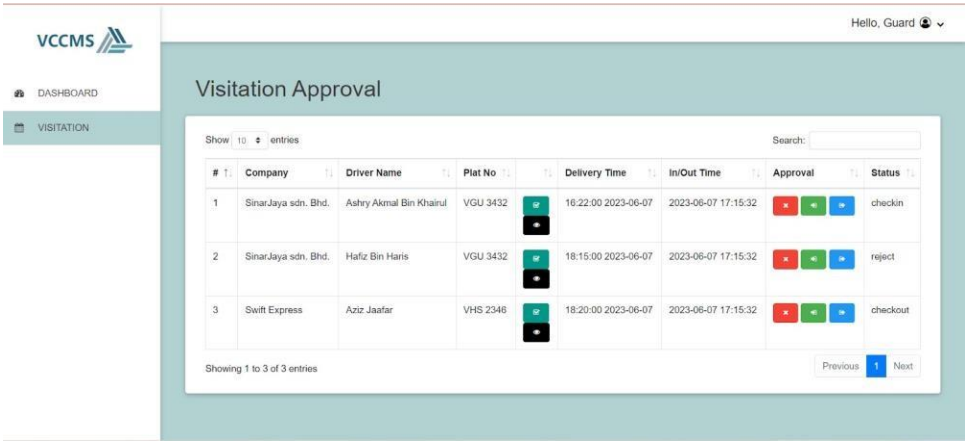


Figure 4.20 Visitation Approval page

Before allowing the vehicle to enter the manufacturing plant, the guard needs to do the verification towards the driver and vehicle by checking all the details in the system are the same as the driver and vehicle assigned to deliver items. An example of verification details is shown in Figure 4.21.

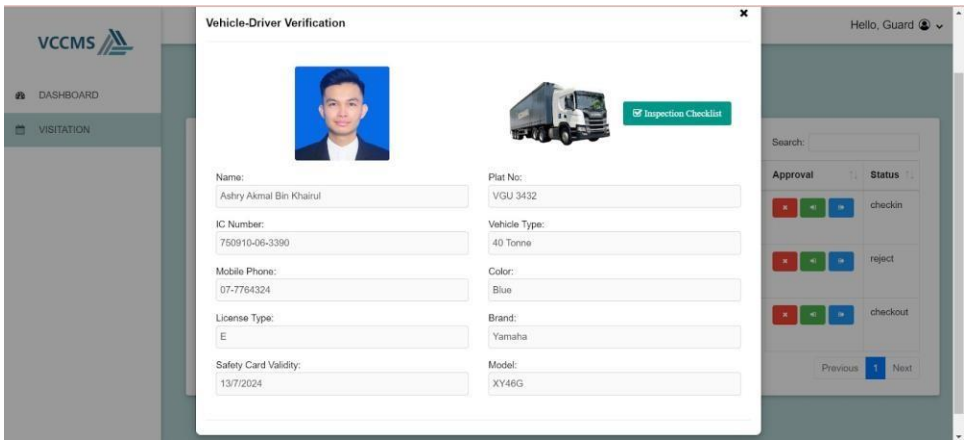


Figure 4.21 Vehicle-Driver Verification page

Figure 4.22 shows the checklist form for the guard to fill in, as all vehicles need to undergo theoverall inspection of the vehicle first before being allowed to enter the manufacturing plant. Once all the inspection is done, the guard will decide whether the vehicle is allowed or not to check in to the manufacturing plant.

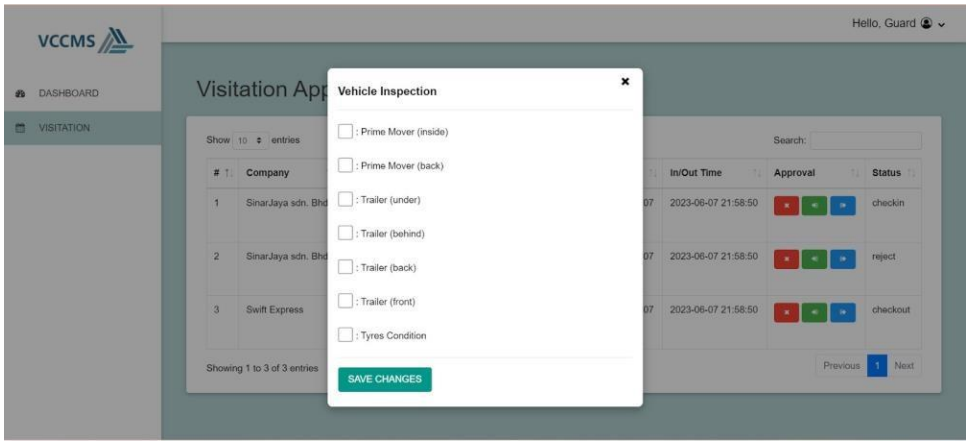


Figure 4.22 Vehicle Inspection Checklist form

4.4 Testing and Result Discussion

Once the VCCMS development is completed, the system undergoes a testing process to ensure that its functionality conforms to the system's specific requirements and meets the required standards. This testing also checks whether the user and the client can easily navigate the system when performing tasks. This testing procedure is carried out on by using personal laptop. Users, also known as respondents, participated in the testing and evaluation process. All of the functionalities that are currently available in this system are tested using the User Acceptance Test form. The system's ability to function properly or not must also be examined. For the UAT's results, see APPENDIX A. The outcomes of the UAT demonstrate the functionality of all the web system’s functionality.

CHAPTER 5

CONCLUSION

5.1 Introduction

This chapter will summarize the development of the Vehicle Check-in and Check-out Management System (VCCMS) for KANEKA Sdn. Bhd. to manage the vehicle to check-in and check-out from the manufacturing plant. This chapter ensures that the system can achieve the objective and solve the problem stated in the problem statement. This system is developed using PHP, MySQL, and Visual Studio code. The methodology used is RAD. This methodology is flexible to produce and deploy software applications quickly because the duration to finish developing the Vehicle Check-in & Check-out Management System (VCCMS) is less than one year.

5.2 User Acceptance

Once the development process is complete, the system's functionality and usability are tested through implementation and evaluation, along with the usefulness or functionality of the system. In this system testing, user acceptance testing (UAT) will be used to test the system's functionality and ensure all its features can be used successfully. The result of the UAT can be referred to APPENDIX A. The results show that almost all the VCCMS features can operate effectively.

5.3 Constraints and Limitations

i. Time

The time given to developing this project is limited. Only 5 months are available to develop the whole system with many functionalities. As the project is individual, it is challenging to develop some functionality that requires much time. Therefore, some functions are not able to be done.

ii. Skills

Coding skill is necessary when developing this web system. When any error occurs while writing the code, the system cannot test and run; the error must be solved first to access the website. Hence, having good coding skills and understanding how the code works is crucial to ensure a smooth process when developing the system.

5.4 Future Work

Several features can be added to improve the functionality of the Vehicle Check-in and Check-out Management System (VCCMS). Some suggestions that may be added are:

I. The driver availability status to deliver the items can be added to the system functionality, so system can automatically check whether the driver is available or not to deliver items to the manufacturing plant. This will prevent from the same driver from receiving two tasks at the same time.

II. When the manufacturing plant staff register the new company username and password, staff can automatically send the credentials details to the company through email. So, when company receive the email, they can login to the system by using the username and password provide by the staff.

III. Integrating with Google Calendar API could be another useful improvement. Using that feature could help the staff see how many vehicles are allowed to do the delivery in a day. Besides, this feature allows the system to send reminders, so the company will get a notification for reminders on the delivery date.

IV. The system can generate the daily report of the vehicles that check-in and check-out from the manufacturing plant to Excel or CSV files. So it can easily share the reports with other staff, allowing them to view and manipulate the data without requiring direct access to the MySQL database.

REFERENCES

Kamaruzaman, M. A. M. B., & Nasir, N. R. M. (2021, March). PARKEY: ticket-less parking system using license plate recognition approach. In *Journal of Physics: Conference Series* (Vol. 1860, No. 1, p. 012006). IOP Publishing.

S. Tenzin, P. Dorji, B. Subba and T. Tobgay, "Smart Check-in Check-out System for Vehicles using Automatic Number Plate Recognition," 2020 11th International Conference on Computing, Communication and Networking Technologies (ICCCNT), 2020, pp. 1-6, doi: 10.1109/ICCCNT49239.2020.9225555.

Alshamrani, A., & Bahattab, A. (2015). A comparison between three SDLC models waterfall model, spiral model, and Incremental/Iterative model. *International Journal of Computer Science Issues (IJCSI), 12*(1), 106.

Datin.Ginny. (2015. The Manager of Seri Barat Mixed sdn. bhd. Kelantan.

Law, P. S. (2015). *Centralized E-booking for UNIMAS room/hall facility.* Universiti Malaysia Sarawak, (UNIMAS).

Chowdhury, I. H., Abida, A., & Muaz, M. M. H. (2018, February). Automated vehicle parking system and unauthorized parking detector. In *2018 20th International Conference on Advanced Communication Technology (ICACT)* (pp. 542-545). IEEE.

Mutua, S. M. (2016). *An automatic number plate recognition system for car park management* (Doctoral dissertation, Strathmore University).

Lee, H., Kim, D., Kim, D., & Bang, S. Y. (2003, July). Real-time automatic vehicle management system using vehicle tracking and car plate number identification. In *2003 International Conference on Multimedia and Expo. ICME'03. Proceedings (Cat. No. 03TH8698)* (Vol. 2, pp. II-353). IEEE.

Abulkhair, M., Sindi, H., Barsheed, B., Al-Omari, M., Al-Shehri, R., Al-Basarah, R., & Al-Harbi, W. (2015). Car inspection system. *Procedia Manufacturing*, *3*, 3128-3135.

Mamat, T. N. A. R., Saman, M. Z. M., Sharif, S., & Simic, V. (2016). Key success factors in establishing end-of-life vehicle management system: A primer for Malaysia. *Journal of Cleaner Production*, *135*, 1289-1297.

Visitor Management System: How It Works | The Receptionist. (2022, March 3). The Original Visitor Management System. Retrieved December 20, 2022, from https://thereceptionist.com/visitor-management-system/?nab=1

i-Neighbour Cloud Residential Visitor Management Solution. (n.d.). *i-Neighbour | Smart Community System - TimeTec Smart LPR*. https://www.ineighbour.com/TimeTecSmartLPR

Lim, M. Y. (2016, February 25). *What are the 7 disadvantages to a manual system*. Academia.edu. Retrieved January 24, 2023, from https://www.academia.edu/22433882/what_are_the_7_disadvantages_to_a_manual_system

APPENDIX A

USER ACCEPTANCE TEST (UAT)

1.0 TESTING REPORT

This section's goal is to provide an overview of the application's User Acceptance Testing (UAT). Approval of this testing that reviewers are confident that following the execution of the test plan,the resulting system will be considered fully tested and eligible for implementation. One of the users, Ms Syafiqah Binti Amran was selected to go through each of the instructions in the user manual. Any errors for problems found are noted on this form.

UAT RESULT (1)

1.1 Manage Users

Test Case	**Test Data**	**Expected Result**	**Actual Result**	**Pass/Fail**	**Comment**
Login with correct username and password	User entered correct username and password	Login successfully	Same as expected result.	Pass	
Login with incorrect username and password	User entered correct username and password	Login unsuccessful	Same as expected result.	Pass	

Table 1.1 Manage Users Table

1.2 Manage company

Test Case	Test Data	Expected Result	Actual Result	Pass/Fail	Comment
Company able to add their company details	User can fill any information	Profile can be viewed on the system	Same as expected result.	Pass	
Company able to update their company details	User can update details of existing information	User can update profile in system	Same as expected result.	Pass	
Company able to add vehicle details	User can fill vehicle details	User can add the details	Same as expected result.	Pass	
Company able to update vehicle details	User can update vehicle details	User can update the details	Same as expected result.	Pass	
Company able to delete vehicle details	User can delete vehicle details	User can delete the details	Same as expected result.	Pass	
Company able to add driver details	User can add driver details	User can add the details	Same as expected result.	Pass	
Company able to update driver details	User can update driver details	User can update the details	Same as expected result.	Pass	
Company able to delete driver details	User can delete driver details	User can delete the details	Same as expected result.	Pass	
Company able to make delivery appoinment	User can make delivery appointment	User can make appointment	Same as expected result.	Pass	
Company able to view the appointment status	User can view the appointment status	User can view status	Same as expected result.	Pass	

Table 1.2 Table manage company

1.3 Manage Staff

Test Case	Test Data	Expected Result	Actual Result	Pass/Fail	Comment
Staff able to view company details	User can view company details	User can view details	Same as expected result.	Pass	
Staff able to delete company details	User can delete company details	User can delete details	Same as expected result.	Pass	
Staff able to view appointment made by company	User can view appointment made by company	User can view the appointment	Same as expected result.	Pass	
Staff able to accept or reject appointment made by company	User can accept or reject the appointment	User can accept / reject the appointment	Same as expected result.	Pass	
Staff able to view all appointment status	User can view all appointment status	User can view all appointment status	Same as expected result.	Pass	

Table 1.3 Table manage staff

1.4 Manage Guard

Test Case	Test Data	Expected Result	Actual Result	Pass/Fail	Comment
Guard able to view delivery appointment of that day	User can view delivery appointment of that day	User can view all the delivery appointment	Same as expected result.	Pass	
Guard able to find the vehicle by plate number	User can find the vehicle by plate number	User can find the vehicle by plate number	Same as expected result.	Pass	
Guard able to view vehicle-driver details	User can view vehicle-driver details	User can view the details	Same as expected result.	Pass	
Guard able to fill the inspection checklist	User can do the vehicle inspection	User can make the vehicle inspection	Same as expected result.	Pass	
Guard able to change the vehicle status to reject, check-in or check-out	User able to change the vehicle status	User can change the vehicle status	Same as expected result.	Pass	

Table 1.4 Table manage guard

	Name	Date
Verified By:  **Nuramira Natasha** **Developer**	Nuramira Natasha Binti Zainuddin	7/6/2023
Approved By:  **Ms. Syafiqah Binti Amran** **User**	Ms Syafiqah Binti Amran	7/6/2023

UAT RESULT (2)

1.0 Manage Users

Test Case	**Test Data**	**Expected Result**	**Actual Result**	**Pass/Fail**	**Comment**
Login with correct username and password	User entered correct username and password	Login successfully	Same as expected result.	Pass	
Login with incorrect username and password	User entered correct username and password	Login unsuccessful	Same as expected result.	Pass	

Table 1.1 Manage Users Table

1.2 Manage company

Test Case	Test Data	Expected Result	Actual Result	Pass/Fail	Comment
Company able to add their company details	User can fill any information	Profile can be viewed on the system	Same as expected result.	Pass	
Company able to update their company details	User can update details of existing information	User can update profile in system	Same as expected result.	Pass	
Company able to add vehicle details	User can fill vehicle details	User can add the details	Same as expected result.	Pass	
Company able to update vehicle details	User can update vehicle details	User can update the details	Same as expected result.	Pass	
Company able to delete vehicle details	User can delete vehicle details	User can delete the details	Same as expected result.	Pass	
Company able to add driver details	User can add driver details	User can add the details	Same as expected result.	Pass	
Company able to update driver details	User can update driver details	User can update the details	Same as expected result.	Pass	
Company able to delete driver details	User can delete driver details	User can delete the details	Same as expected result.	Pass	
Company able to make delivery appoinment	User can make delivery appointment	User can make appointment	Same as expected result.	Pass	
Company able to view the appointment status	User can view the appointment status	User can view status	Same as expected result.	Pass	

Table 1.2 Table manage company

1.1 Manage Staff

Test Case	**Test Data**	**Expected Result**	**Actual Result**	**Pass/Fail**	**Comment**
Staff able to view company details	User can view company details	User can view details	Same as expected result.	Pass	
Staff able to delete company details	User can delete company details	User can delete details	Same as expected result.	Pass	
Staff able to view appointment made by company	User can view appointment made by company	User can view the appointment	Same as expected result.	Pass	
Staff able to accept or reject appointment made by company	User can accept or reject the appointment	User can accept / reject the appointment	Same as expected result.	Pass	
Staff able to view all appointment status	User can view all appointment status	User can view all appointment status	Same as expected result.	Pass	

Table 1.3 Table manage staff

1.2 Manage Guard

Test Case	Test Data	Expected Result	Actual Result	Pass/Fail	Comment
Guard able to view delivery appointment of that day	User can view delivery appointment of that day	User can view all the delivery appointment	Same as expected result.	Pass	
Guard able to find the vehicle by plate number	User can find the vehicle by plate number	User can find the vehicle by plate number	Same as expected result.	Pass	
Guard able to view vehicle-driver details	User can view vehicle-driver details	User can view the details	Same as expected result.	Pass	
Guard able to fill the inspection checklist	User can do the vehicle inspection	User can make the vehicle inspection	Same as expected result.	Pass	
Guard able to change the vehicle status to reject, check-in or check-out	User able to change the vehicle status	User can change the vehicle status	Same as expected result.	Pass	

Table 1.4 Table manage guard

	Name	Date
Verified By:  **Nuramira Natasha** **Developer**	Nuramira Natasha Binti Zainuddin	7/6/2023
Approved By:  **Siti Nadhirah Razak** **User**	Siti Nadhirah Razak	7/6/2023

UAT RESULT (3)

1.3 Manage Users

Test Case	**Test Data**	**Expected Result**	**Actual Result**	**Pass/Fail**	**Comment**
Login with correct username and password	User entered correct username and password	Login successfully	Same as expected result.	Pass	
Login with incorrect username and password	User entered correct username and password	Login unsuccessful	Same as expected result.	Pass	

Table 1.1 Manage Users Table

1.2 Manage company

Test Case	Test Data	Expected Result	Actual Result	Pass/Fail	Comment
Company able to add their company details	User can fill any information	Profile can be viewed on the system	Same as expected result.	Pass	
Company able to update their company details	User can update details of existing information	User can update profile in system	Same as expected result.	Pass	
Company able to add vehicle details	User can fill vehicle details	User can add the details	Same as expected result.	Pass	
Company able to update vehicle details	User can update vehicle details	User can update the details	Same as expected result.	Pass	
Company able to delete vehicle details	User can delete vehicle details	User can delete the details	Same as expected result.	Pass	
Company able to add driver details	User can add driver details	User can add the details	Same as expected result.	Pass	
Company able to update driver details	User can update driver details	User can update the details	Same as expected result.	Pass	
Company able to delete driver details	User can delete driver details	User can delete the details	Same as expected result.	Pass	
Company able to make delivery appoinment	User can make delivery appointment	User can make appointment	Same as expected result.	Pass	
Company able to view the appointment status	User can view the appointment status	User can view status	Same as expected result.	Pass	

Table 1.2 Table manage company

1.4 Manage Staff

Test Case	**Test Data**	**Expected Result**	**Actual Result**	**Pass/Fail**	**Comment**
Staff able to view company details	User can view company details	User can view details	Same as expected result.	Pass	
Staff able to delete company details	User can delete company details	User can delete details	Same as expected result.	Pass	
Staff able to view appointment made by company	User can view appointment made by company	User can view the appointment	Same as expected result.	Pass	
Staff able to accept or reject appointment made by company	User can accept or reject the appointment	User can accept / reject the appointment	Same as expected result.	Pass	
Staff able to view all appointment status	User can view all appointment status	User can view all appointment status	Same as expected result.	Pass	

Table 1.3 Table manage staff

1.5 Manage Guard

Test Case	Test Data	Expected Result	Actual Result	Pass/Fail	Comment
Guard able to view delivery appointment of that day	User can view delivery appointment of that day	User can view all the delivery appointment	Same as expected result.	Pass	
Guard able to find the vehicle by plate number	User can find the vehicle by plate number	User can find the vehicle by plate number	Same as expected result.	Pass	
Guard able to view vehicle-driver details	User can view vehicle-driver details	User can view the details	Same as expected result.	Pass	
Guard able to fill the inspection checklist	User can do the vehicle inspection	User can make the vehicle inspection	Same as expected result.	Pass	
Guard able to change the vehicle status to reject, check-in or check-out	User able to change the vehicle status	User can change the vehicle status	Same as expected result.	Pass	

Table 1.4 Table manage guard

	Name	Date
Verified By:  **Nuramira Natasha** **Developer**	Nuramira Natasha Binti Zainuddin	7/6/2023
Approved By:  **Siti Nurlyiana Paiz** **User**	Siti Nurlyiana Paiz	7/6/2023

UAT RESULT (4)

1.6 Manage Users

Test Case	**Test Data**	**Expected Result**	**Actual Result**	**Pass/Fail**	**Comment**
Login with correct username and password	User entered correct username and password	Login successfully	Same as expected result.	Pass	
Login with incorrect username and password	User entered correct username and password	Login unsuccessful	Same as expected result.	Pass	

Table 1.1 Manage Users Table

1.2 Manage company

Test Case	Test Data	Expected Result	Actual Result	Pass/Fail	Comment
Company able to add their company details	User can fill any information	Profile can be viewed on the system	Same as expected result.	Pass	
Company able to update their company details	User can update details of existing information	User can update profile in system	Same as expected result.	Pass	
Company able to add vehicle details	User can fill vehicle details	User can add the details	Same as expected result.	Pass	
Company able to update vehicle details	User can update vehicle details	User can update the details	Same as expected result.	Pass	
Company able to delete vehicle details	User can delete vehicle details	User can delete the details	Same as expected result.	Pass	
Company able to add driver details	User can add driver details	User can add the details	Same as expected result.	Pass	
Company able to update driver details	User can update driver details	User can update the details	Same as expected result.	Pass	
Company able to delete driver details	User can delete driver details	User can delete the details	Same as expected result.	Pass	
Company able to make delivery appoinment	User can make delivery appointment	User can make appointment	Same as expected result.	Pass	
Company able to view the appointment status	User can view the appointment status	User can view status	Same as expected result.	Pass	

Table 1.2 Table manage company

1.7 Manage Staff

Test Case	Test Data	Expected Result	Actual Result	Pass/Fail	Comment
Staff able to view company details	User can view company details	User can view details	Same as expected result.	Pass	
Staff able to delete company details	User can delete company details	User can delete details	Same as expected result.	Pass	
Staff able to view appointment made by company	User can view appointment made by company	User can view the appointment	Same as expected result.	Pass	
Staff able to accept or reject appointment made by company	User can accept or reject the appointment	User can accept / reject the appointment	Same as expected result.	Pass	
Staff able to view all appointment status	User can view all appointment status	User can view all appointment status	Same as expected result.	Pass	

Table 1.3 Table manage staff

1.8 Manage Guard

Test Case	Test Data	Expected Result	Actual Result	Pass/Fail	Comment
Guard able to view delivery appointment of that day	User can view delivery appointment of that day	User can view all the delivery appointment	Same as expected result.	Pass	
Guard able to find the vehicle by plate number	User can find the vehicle by plate number	User can find the vehicle by plate number	Same as expected result.	Pass	
Guard able to view vehicle-driver details	User can view vehicle-driver details	User can view the details	Same as expected result.	Pass	
Guard able to fill the inspection checklist	User can do the vehicle inspection	User can make the vehicle inspection	Same as expected result.	Pass	
Guard able to change the vehicle status to reject, check-in or check-out	User able to change the vehicle status	User can change the vehicle status	Same as expected result.	Pass	

Table 1.4 Table manage guard

	Name	Date
Verified By:  **Nuramira Natasha** **Developer**	Nuramira Natasha Binti Zainuddin	7/6/2023
Approved By:  **Nurul Syahirah Ramly** **User**	Nurul Syahirah Ramly	7/6/2023

UAT RESULT (5)

1.9 Manage Users

Test Case	**Test Data**	**Expected Result**	**Actual Result**	**Pass/Fail**	**Comment**
Login with correct username and password	User entered correct username and password	Login successfully	Same as expected result.	Pass	
Login with incorrect username and password	User entered correct username and password	Login unsuccessful	Same as expected result.	Pass	

Table 1.1 Manage Users Table

1.2 Manage company

Test Case	Test Data	Expected Result	Actual Result	Pass/Fail	Comment
Company able to add their company details	User can fill any information	Profile can be viewed on the system	Same as expected result.	Pass	
Company able to update their company details	User can update details of existing information	User can update profile in system	Same as expected result.	Pass	
Company able to add vehicle details	User can fill vehicle details	User can add the details	Same as expected result.	Pass	
Company able to update vehicle details	User can update vehicle details	User can update the details	Same as expected result.	Pass	
Company able to delete vehicle details	User can delete vehicle details	User can delete the details	Same as expected result.	Pass	
Company able to add driver details	User can add driver details	User can add the details	Same as expected result.	Pass	
Company able to update driver details	User can update driver details	User can update the details	Same as expected result.	Pass	
Company able to delete driver details	User can delete driver details	User can delete the details	Same as expected result.	Pass	
Company able to make delivery appointment	User can make delivery appointment	User can make appointment	Same as expected result.	Pass	
Company able to view the appointment status	User can view the appointment status	User can view status	Same as expected result.	Pass	

Table 1.2 Table manage company

1.10 Manage Staff

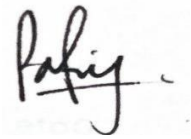
Test Case	Test Data	Expected Result	Actual Result	Pass/Fail	Comment
Staff able to view company details	User can view company details	User can view details	Same as expected result.	Pass	
Staff able to delete company details	User can delete company details	User can delete details	Same as expected result.	Pass	
Staff able to view appointment made by company	User can view appointment made by company	User can view the appointment	Same as expected result.	Pass	
Staff able to accept or reject appointment made by company	User can accept or reject the appointment	User can accept / reject the appointment	Same as expected result.	Pass	
Staff able to view all appointment status	User can view all appointment status	User can view all appointment status	Same as expected result.	Pass	

Table 1.3 Table manage staff

1.11 Manage Guard

Test Case	Test Data	Expected Result	Actual Result	Pass/Fail	Comment
Guard able to view delivery appointment of that day	User can view delivery appointment of that day	User can view all the delivery appointment	Same as expected result.	Pass	
Guard able to find the vehicle by plate number	User can find the vehicle by plate number	User can find the vehicle by plate number	Same as expected result.	Pass	
Guard able to view vehicle-driver details	User can view vehicle-driver details	User can view the details	Same as expected result.	Pass	
Guard able to fill the inspection checklist	User can do the vehicle inspection	User can make the vehicle inspection	Same as expected result.	Pass	
Guard able to change the vehicle status to reject, check-in or check-out	User able to change the vehicle status	User can change the vehicle status	Same as expected result.	Pass	

Table 1.4 Table manage guard

	Name	Date
Verified By:  **Nuramira Natasha** **Developer**	Nuramira Natasha Binti Zainuddin	7/6/2023
Approved By:  **Fadhlina Amirah Azilimy** **User**	Fadhlina Amirah Azilimy	7/6/2023

UAT RESULT (6)

1.12 Manage Users

Test Case	**Test Data**	**Expected Result**	**Actual Result**	**Pass/Fail**	**Comment**
Login with correct username and password	User entered correct username and password	Login successfully	Same as expected result.	Pass	
Login with incorrect username and password	User entered correct username and password	Login unsuccessful	Same as expected result.	Pass	

Table 1.1 Manage Users Table

1.2 Manage company

Test Case	Test Data	Expected Result	Actual Result	Pass/Fail	Comment
Company able to add their company details	User can fill any information	Profile can be viewed on the system	Same as expected result.	Pass	
Company able to update their company details	User can update details of existing information	User can update profile in system	Same as expected result.	Pass	
Company able to add vehicle details	User can fill vehicle details	User can add the details	Same as expected result.	Pass	
Company able to update vehicle details	User can update vehicle details	User can update the details	Same as expected result.	Pass	
Company able to delete vehicle details	User can delete vehicle details	User can delete the details	Same as expected result.	Pass	
Company able to add driver details	User can add driver details	User can add the details	Same as expected result.	Pass	
Company able to update driver details	User can update driver details	User can update the details	Same as expected result.	Pass	
Company able to delete driver details	User can delete driver details	User can delete the details	Same as expected result.	Pass	
Company able to make delivery appoinment	User can make delivery appointment	User can make appointment	Same as expected result.	Pass	
Company able to view the appointment status	User can view the appointment status	User can view status	Same as expected result.	Pass	

Table 1.2 Table manage company

1.13 Manage Staff

Test Case	Test Data	Expected Result	Actual Result	Pass/Fail	Comment
Staff able to view company details	User can view company details	User can view details	Same as expected result.	Pass	
Staff able to delete company details	User can delete company details	User can delete details	Same as expected result.	Pass	
Staff able to view appointment made by company	User can view appointment made by company	User can view the appointment	Same as expected result.	Pass	
Staff able to accept or reject appointment made by company	User can accept or reject the appointment	User can accept / reject the appointment	Same as expected result.	Pass	
Staff able to view all appointment status	User can view all appointment status	User can view all appointment status	Same as expected result.	Pass	

Table 1.3 Table manage staff

1.14 Manage Guard

Test Case	Test Data	Expected Result	Actual Result	Pass/Fail	Comment
Guard able to view delivery appointment of that day	User can view delivery appointment of that day	User can view all the delivery appointment	Same as expected result.	Pass	
Guard able to find the vehicle by plate number	User can find the vehicle by plate number	User can find the vehicle by plate number	Same as expected result.	Pass	
Guard able to view vehicle-driver details	User can view vehicle-driver details	User can view the details	Same as expected result.	Pass	
Guard able to fill the inspection checklist	User can do the vehicle inspection	User can make the vehicle inspection	Same as expected result.	Pass	
Guard able to change the vehicle status to reject, check-in or check-out	User able to change the vehicle status	User can change the vehicle status	Same as expected result.	Pass	

Table 1.4 Table manage guard

	Name	Date
Verified By:  **Nuramira Natasha** **Developer**	Nuramira Natasha Binti Zainuddin	7/6/2023
Approved By:  **Panita Prepan** **User**	Panita Prepan	7/6/2023

UAT RESULT (7)

1.0 Manage Users

Test Case	**Test Data**	**Expected Result**	**Actual Result**	**Pass/Fail**	**Comment**
Login with correct username and password	User entered correct username and password	Login successfully	Same as expected result.	Pass	
Login with incorrect username and password	User entered correct username and password	Login unsuccessful	Same as expected result.	Pass	

Table 1.1 Manage Users Table

1.2 Manage company

Test Case	Test Data	Expected Result	Actual Result	Pass/Fail	Comment
Company able to add their company details	User can fill any information	Profile can be viewed on the system	Same as expected result.	Pass	
Company able to update their company details	User can update details of existing information	User can update profile in system	Same as expected result.	Pass	
Company able to add vehicle details	User can fill vehicle details	User can add the details	Same as expected result.	Pass	
Company able to update vehicle details	User can update vehicle details	User can update the details	Same as expected result.	Pass	
Company able to delete vehicle details	User can delete vehicle details	User can delete the details	Same as expected result.	Pass	
Company able to add driver details	User can add driver details	User can add the details	Same as expected result.	Pass	
Company able to update driver details	User can update driver details	User can update the details	Same as expected result.	Pass	
Company able to delete driver details	User can delete driver details	User can delete the details	Same as expected result.	Pass	
Company able to make delivery appoinment	User can make delivery appointment	User can make appointment	Same as expected result.	Pass	
Company able to view the appointment status	User can view the appointment status	User can view status	Same as expected result.	Pass	

Table 1.2 Table manage company

1.1 Manage Staff

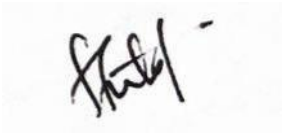
Test Case	**Test Data**	**Expected Result**	**Actual Result**	**Pass/Fail**	**Comment**
Staff able to view company details	User can view company details	User can view details	Same as expected result.	Pass	
Staff able to delete company details	User can delete company details	User can delete details	Same as expected result.	Pass	
Staff able to view appointment made by company	User can view appointment made by company	User can view the appointment	Same as expected result.	Pass	
Staff able to accept or reject appointment made by company	User can accept or reject the appointment	User can accept / reject the appointment	Same as expected result.	Pass	
Staff able to view all appointment status	User can view all appointment status	User can view all appointment status	Same as expected result.	Pass	

Table 1.3 Table manage staff

1.2 Manage Guard

Test Case	Test Data	Expected Result	Actual Result	Pass/Fail	Comment
Guard able to view delivery appointment of that day	User can view delivery appointment of that day	User can view all the delivery appointment	Same as expected result.	Pass	
Guard able to find the vehicle by plate number	User can find the vehicle by plate number	User can find the vehicle by plate number	Same as expected result.	Pass	
Guard able to view vehicle-driver details	User can view vehicle-driver details	User can view the details	Same as expected result.	Pass	
Guard able to fill the inspection checklist	User can do the vehicle inspection	User can make the vehicle inspection	Same as expected result.	Pass	
Guard able to change the vehicle status to reject, check-in or check-out	User able to change the vehicle status	User can change the vehicle status	Same as expected result.	Pass	

Table 1.4 Table manage guard

	Name	Date
Verified By:  **Nuramira Natasha** **Developer**	Nuramira Natasha Binti Zainuddin	7/6/2023
Approved By:  **Farah Nabila Razali** **User**	Farah Nabila Razali	7/6/2023

UAT RESULT (8)

1.0 Manage Users

Test Case	**Test Data**	**Expected Result**	**Actual Result**	**Pass/Fail**	**Comment**
Login with correct username and password	User entered correct username and password	Login successfully	Same as expected result.	Pass	
Login with incorrect username and password	User entered correct username and password	Login unsuccessful	Same as expected result.	Pass	

Table 1.1 Manage Users Table

1.2 Manage company

Test Case	Test Data	Expected Result	Actual Result	Pass/Fail	Comment
Company able to add their company details	User can fill any information	Profile can be viewed on the system	Same as expected result.	Pass	
Company able to update their company details	User can update details of existing information	User can update profile in system	Same as expected result.	Pass	
Company able to add vehicle details	User can fill vehicle details	User can add the details	Same as expected result.	Pass	
Company able to update vehicle details	User can update vehicle details	User can update the details	Same as expected result.	Pass	
Company able to delete vehicle details	User can delete vehicle details	User can delete the details	Same as expected result.	Pass	
Company able to add driver details	User can add driver details	User can add the details	Same as expected result.	Pass	
Company able to update driver details	User can update driver details	User can update the details	Same as expected result.	Pass	
Company able to delete driver details	User can delete driver details	User can delete the details	Same as expected result.	Pass	
Company able to make delivery appoinment	User can make delivery appointment	User can make appointment	Same as expected result.	Pass	
Company able to view the appointment status	User can view the appointment status	User can view status	Same as expected result.	Pass	

Table 1.2 Table manage company

1.1 Manage Staff

Test Case	**Test Data**	**Expected Result**	**Actual Result**	**Pass/Fail**	**Comment**
Staff able to view company details	User can view company details	User can view details	Same as expected result.	Pass	
Staff able to delete company details	User can delete company details	User can delete details	Same as expected result.	Pass	
Staff able to view appointment made by company	User can view appointment made by company	User can view the appointment	Same as expected result.	Pass	
Staff able to accept or reject appointment made by company	User can accept or reject the appointment	User can accept / reject the appointment	Same as expected result.	Pass	
Staff able to view all appointment status	User can view all appointment status	User can view all appointment status	Same as expected result.	Pass	

Table 1.3 Table manage staff

1.2 Manage Guard

Test Case	Test Data	Expected Result	Actual Result	Pass/Fail	Comment
Guard able to view delivery appointment of that day	User can view delivery appointment of that day	User can view all the delivery appointment	Same as expected result.	Pass	
Guard able to find the vehicle by plate number	User can find the vehicle by plate number	User can find the vehicle by plate number	Same as expected result.	Pass	
Guard able to view vehicle-driver details	User can view vehicle-driver details	User can view the details	Same as expected result.	Pass	
Guard able to fill the inspection checklist	User can do the vehicle inspection	User can make the vehicle inspection	Same as expected result.	Pass	
Guard able to change the vehicle status to reject, check-in or check-out	User able to change the vehicle status	User can change the vehicle status	Same as expected result.	Pass	

Table 1.4 Table manage guard

	Name	Date
Verified By:  **Nuramira Natasha** **Developer**	Nuramira Natasha Binti Zainuddin	7/6/2023
Approved By:  **Iliya Syazwani Sarulhisam** **User**	Iliya Syazwani Sarulhisam	7/6/2023

UAT RESULT (9)

1.0 Manage Users

Test Case	**Test Data**	**Expected Result**	**Actual Result**	**Pass/Fail**	**Comment**
Login with correct username and password	User entered correct username and password	Login successfully	Same as expected result.	Pass	
Login with incorrect username and password	User entered correct username and password	Login unsuccessful	Same as expected result.	Pass	

Table 1.1 Manage Users Table

1.2 Manage company

Test Case	Test Data	Expected Result	Actual Result	Pass/Fail	Comment
Company able to add their company details	User can fill any information	Profile can be viewed on the system	Same as expected result.	Pass	
Company able to update their company details	User can update details of existing information	User can update profile in system	Same as expected result.	Pass	
Company able to add vehicle details	User can fill vehicle details	User can add the details	Same as expected result.	Pass	
Company able to update vehicle details	User can update vehicle details	User can update the details	Same as expected result.	Pass	
Company able to delete vehicle details	User can delete vehicle details	User can delete the details	Same as expected result.	Pass	
Company able to add driver details	User can add driver details	User can add the details	Same as expected result.	Pass	
Company able to update driver details	User can update driver details	User can update the details	Same as expected result.	Pass	
Company able to delete driver details	User can delete driver details	User can delete the details	Same as expected result.	Pass	
Company able to make delivery appoinment	User can make delivery appointment	User can make appointment	Same as expected result.	Pass	
Company able to view the appointment status	User can view the appointment status	User can view status	Same as expected result.	Pass	

Table 1.2 Table manage company

1.1 Manage Staff

Test Case	Test Data	Expected Result	Actual Result	Pass/Fail	Comment
Staff able to view company details	User can view company details	User can view details	Same as expected result.	Pass	
Staff able to delete company details	User can delete company details	User can delete details	Same as expected result.	Pass	
Staff able to view appointment made by company	User can view appointment made by company	User can view the appointment	Same as expected result.	Pass	
Staff able to accept or reject appointment made by company	User can accept or reject the appointment	User can accept / reject the appointment	Same as expected result.	Pass	
Staff able to view all appointment status	User can view all appointment status	User can view all appointment status	Same as expected result.	Pass	

Table 1.3 Table manage staff

1.2 Manage Guard

Test Case	Test Data	Expected Result	Actual Result	Pass/Fail	Comment
Guard able to view delivery appointment of that day	User can view delivery appointment of that day	User can view all the delivery appointment	Same as expected result.	Pass	
Guard able to find the vehicle by plate number	User can find the vehicle by plate number	User can find the vehicle by plate number	Same as expected result.	Pass	
Guard able to view vehicle-driver details	User can view vehicle-driver details	User can view the details	Same as expected result.	Pass	
Guard able to fill the inspection checklist	User can do the vehicle inspection	User can make the vehicle inspection	Same as expected result.	Pass	
Guard able to change the vehicle status to reject, check-in or check-out	User able to change the vehicle status	User can change the vehicle status	Same as expected result.	Pass	

Table 1.4 Table manage guard

	Name	Date
Verified By:  **Nuramira Natasha** **Developer**	Nuramira Natasha Binti Zainuddin	7/6/2023
Approved By:  **Nurul Izzati Rusli** **User**	Nurul Izzati Rusli	7/6/2023

UAT RESULT (10)

1.0 Manage Users

Test Case	**Test Data**	**Expected Result**	**Actual Result**	**Pass/Fail**	**Comment**
Login with correct username and password	User entered correct username and password	Login successfully	Same as expected result.	Pass	
Login with incorrect username and password	User entered correct username and password	Login unsuccessful	Same as expected result.	Pass	

Table 1.1 Manage Users Table

1.2 Manage company

Test Case	Test Data	Expected Result	Actual Result	Pass/Fail	Comment
Company able to add their company details	User can fill any information	Profile can be viewed on the system	Same as expected result.	Pass	
Company able to update their company details	User can update details of existing information	User can update profile in system	Same as expected result.	Pass	
Company able to add vehicle details	User can fill vehicle details	User can add the details	Same as expected result.	Pass	
Company able to update vehicle details	User can update vehicle details	User can update the details	Same as expected result.	Pass	
Company able to delete vehicle details	User can delete vehicle details	User can delete the details	Same as expected result.	Pass	
Company able to add driver details	User can add driver details	User can add the details	Same as expected result.	Pass	
Company able to update driver details	User can update driver details	User can update the details	Same as expected result.	Pass	
Company able to delete driver details	User can delete driver details	User can delete the details	Same as expected result.	Pass	
Company able to make delivery appoinment	User can make delivery appointment	User can make appointment	Same as expected result.	Pass	
Company able to view the appointment status	User can view the appointment status	User can view status	Same as expected result.	Pass	

Table 1.2 Table manage company

1.1 Manage Staff

Test Case	**Test Data**	**Expected Result**	**Actual Result**	**Pass/Fail**	**Comment**
Staff able to view company details	User can view company details	User can view details	Same as expected result.	Pass	
Staff able to delete company details	User can delete company details	User can delete details	Same as expected result.	Pass	
Staff able to view appointment made by company	User can view appointment made by company	User can view the appointment	Same as expected result.	Pass	
Staff able to accept or reject appointment made by company	User can accept or reject the appointment	User can accept / reject the appointment	Same as expected result.	Pass	
Staff able to view all appointment status	User can view all appointment status	User can view all appointment status	Same as expected result.	Pass	

Table 1.3 Table manage staff

1.2 Manage Guard

Test Case	Test Data	Expected Result	Actual Result	Pass/Fail	Comment
Guard able to view delivery appointment of that day	User can view delivery appointment of that day	User can view all the delivery appointment	Same as expected result.	Pass	
Guard able to find the vehicle by plate number	User can find the vehicle by plate number	User can find the vehicle by plate number	Same as expected result.	Pass	
Guard able to view vehicle-driver details	User can view vehicle-driver details	User can view the details	Same as expected result.	Pass	
Guard able to fill the inspection checklist	User can do the vehicle inspection	User can make the vehicle inspection	Same as expected result.	Pass	
Guard able to change the vehicle status to reject, check-in or check-out	User able to change the vehicle status	User can change the vehicle status	Same as expected result.	Pass	

Table 1.4 Table manage guard

	Name	Date
Verified By:  **Nuramira Natasha** **Developer**	Nuramira Natasha Binti Zainuddin	7/6/2023
Approved By:  **Ainin Sofiya Adnan** **User**	Ainin Sofiya Adnan	7/6/2023