



TRƯỜNG ĐẠI HỌC FPT

MINISTRY OF EDUCATION AND TRAINING

# FPT UNIVERSITY

## Capstone Project Document

### Mechanical Machinery Rental and Management System

**FA24SE008**

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<b>Capstone Project code</b>	GFA24SE22

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We are equally grateful for the love and encouragement from our families and friends. Their unwavering support has been a constant source of motivation, inspiring us to persevere and complete this journey.

Despite our best efforts, we acknowledge our limitations and the challenges that arose due to our inexperience with certain technologies. We kindly ask for your understanding and patience regarding any shortcomings.

Finally, we thank everyone who has accompanied us on this journey, offering encouragement, guidance, and support. Your contributions have made this achievement possible, and we are forever grateful.

With sincere thanks and warm regards.

## Definition and Acronyms

Acronym	Definition
MMRMS	Mechanical Machinery Rental and Management System
BR	Business Rule
ERD	Entity Relationship Diagram
UAT	User Acceptance Test
API	Application Program Interface

*Table 01 - Acronym and Definition*

## I. Project Introduction

### 1. Overview

#### 1.1 Project Information

- Project name: Building a Mechanical Machinery Rental and Management System
- Project code: FA24SE008
- Group name: GFA24SE22
- Software type: Web, Mobile App

#### 1.2 Project Team

##### 1.2.1 Supervisor

Full Name	Role	Email	Mobile
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Table 02 - Supervisors

##### 1.2.2 Team Members

Full Name	Role	Email	Mobile
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Ly Ngoc Dang Khoa	Member	khoaIndse172103@fpt.edu.vn	0359958751
Vo Minh Tri	Member	trivmse172223@fpt.edu.vn	0798078551
Bui Nguyen Phuc Khang	Member	khangbnpse171990@fpt.edu.vn	0982898108

Table 03 - Team Members

### 2. Product Background

Mechanical Machinery Rental and Management System refers to a software solution designed to streamline the process of renting out heavy machinery, such as cranes, excavators, and bulldozers. The software typically includes features such as rental inventory management, equipment tracking, job scheduling, and billing. It enables companies to efficiently manage their rental fleets and track the status of equipment in real-time. This type of software can also help improve customer satisfaction by providing a user-friendly interface that makes it easy to locate and reserve machinery for rent.

Currently, traditional companies carry out the process of renting mechanical machinery directly, and do not have a website to manage the renting information. The manual system has confusion due to inconsistent management information, making data statistics very difficult. From the above descriptions, it is necessary to build a system that supports information management and renting management for mechanical machinery.

### 3. Existing Systems

#### 3.1 Titan Machinery

Titan Machinery is a comprehensive dealer network specializing in agriculture and construction equipment. With over 100 full-service dealerships across the United States, Europe, and Australia, Titan Machinery offers a wide range of new and used equipment. The website provides detailed listings of available equipment, parts, and services, making it a one-stop solution for customers in need of reliable machinery and support.

- Link: <https://www.titanmachinery.com/>
- Pro:
  - Offers a vast inventory of both new and used agricultural and construction equipment from top brands.
  - Operates over 100 dealerships across multiple continents, ensuring accessibility and support for a diverse customer base.
  - Provides extensive parts and service support, helping customers maintain and repair their equipment efficiently.
- Cons:
  - The large scale of operations and extensive inventory can sometimes lead to logistical challenges and delays in service or delivery.
  - Pricing of equipment and services to be on the higher side, which might not be suitable

### 3.2 Trung Nam SMC

Trung Nam SMC is a leading company in Vietnam specializing in the transportation of oversized and overweight cargo, construction and installation of energy projects, and rental of machinery and equipment. Their services include the transportation of super-heavy cargo, construction of wind power projects, and leasing of various types of construction machinery. Trungnam SMC is known for its modern equipment and experienced team, ensuring high-quality service for large-scale projects.

- Link: <https://trungnamsmc.com.vn/>
- Pro:
  - Provides a wide range of modern and specialized equipment, including hydraulic trailers, crawler cranes, and self-propelled modular transporters (SPMTs), which enhance their capability to handle complex projects.
  - The company has a strong track record in constructing and installing wind power projects, contributing significantly to renewable energy development in Vietnam.
  - Offers a full suite of services from transportation to installation and maintenance.
- Cons:
  - While Trungnam SMC is a leader in Vietnam, its international presence is not as strong, which might limit its appeal to global clients.
  - Coordinating the transportation and installation of super-heavy cargo involves complex logistics. Any mismanagement can lead to delays and increased costs.

## 4. Business Opportunity

The business opportunity to develop a Mechanical Machinery Rental and Management System to replace its current manual processes. The company struggles with inconsistent data management, leading to confusion and inefficiency. A digital system would streamline operations, centralize information, and enable real-time equipment tracking. This would improve customer experience,

reduce operational costs, and provide a competitive edge. The system's scalability and analytics capabilities would support business growth and help the company make data-driven decisions.

## 5. Software Product Vision

The vision for the Mechanical Machinery Rental and Management System is to create a comprehensive, user-friendly application that revolutionizes the way companies manage its rental operations. This software will serve as a centralized hub for all rental activities, offering real-time equipment tracking, streamlined inventory management, invoices and contracts generation. It will provide customers with an intuitive interface to easily browse, reserve, and manage machinery rentals, enhancing their overall experience. By digitizing and optimizing the rental process, the system aims to eliminate manual errors, improve operational efficiency, and support the company's growth and scalability in the competitive machinery rental market.

## 6. Project Scope & Limitations

This section outlines the key features of the Mechanical Machinery Rental and Management System, focusing on those that address the current challenges faced by many companies. It also clarifies what will be excluded in the initial release to set clear expectations. Defining the scope and limitations helps ensure that the project stays on track and meets its objectives.

### 6.1 Major Features

#### Feature - 01: Account Management

This feature allows users to manage accounts, including secure authentication and personalized settings.

#### Feature - 02: Machinery and Machinery Maintenance Management

This feature allows users to manage mechanical machinery, including tracking availability, scheduling regular maintenance tasks to ensure optimal performance.

#### Feature - 03: Contract Management

This feature allows users to manage contracts, including tracking and storage of rental contracts, ensuring processing, compliance with rental terms and retrieval of contract details.

#### Feature - 04: Delivery Task Management

This feature allows users to manage scheduling and tracking the delivery and return of rented machinery, ensuring timely and accurate delivery of machineries.

#### Feature - 05: Machinery Task Management

This feature allows users to assign, track, and manage tasks such as check machinery issue, inspection, enhancing productivity and ensuring operational efficiency.

#### Feature - 06: Invoice Management

This feature allows users to manage invoices for rentals, including tracking payments ensuring accurate billing and timely payments.

#### Feature - 07: Contents and Logs Management

This feature allows users to store and manage contents, logs in the system.

**Feature - 08: Report and Statistics Management**

This feature allows users to manage reports and statistics.

**Feature - 09: System Automation and Notification**

This feature allows the system to automate routine tasks and sends notifications.

## 6.2 Limitations & Exclusions

**LI-1: The Mechanical Machinery Rental and Management System will only support the rental of heavy machinery currently listed in Thanh Luan Machinery and Equipment's inventory.**

It will not accommodate the rental of third-party or subcontracted machinery.

**LI-2: The system will not support international transactions or currencies.**

All transactions and billing will be conducted in the local currency (VND) only.

**LI-3: Support for multiple languages will not be included.**

The system will be developed in Vietnamese, with additional language options considered for future versions.

**LI-4: Customer support functionalities such as live chat or automated issue resolution will be excluded.**

All customer inquiries will need to be handled through existing manual processes.

**LI-5: The system will not support integration with external maintenance management systems.**

All maintenance scheduling and records will need to be managed within the system or manually.

**LI-6: The system will not include advanced inventory forecasting or demand prediction features.**

Inventory levels and equipment availability will need to be manually monitored and managed.

**LI-7: The system will not include support for refunds.**

While payment processing will be supported, refund management will need to be handled manually outside the system.

**LI-8: Integration with Accounting Systems**

Integration with third-party accounting software or ERP systems will not be supported in the initial release. All financial records will need to be managed manually or within the system's own basic features.

**LI-9: Machine Utilization Tracking**

The system will not include real-time tracking of machine utilization, hours worked, or GPS tracking.

**LI-10: Service will be provided for a limited area**

The system will only provide services for Ho Chi Minh city only.

## II. Project Management Plan

### 1. Overview

#### 1.1 Scope & Estimation

No	WBS Item	Complexity	Est. Effort (man-days)
<b>1</b>	<b>Initializing</b>		<b>15</b>
1.1	Kick-off meeting	Simple	1
1.2	Requirement Analysis	Complex	10
1.3	Determine Project Scope	Medium	4
<b>2</b>	<b>Planning</b>		<b>10</b>
2.1	Create a Project Management Plan	Medium	5
2.2	Team meeting	Medium	2
2.3	Supervisor meeting	Medium	3
<b>3</b>	<b>Executing</b>		
<b>3.1</b>	<b>Analysis</b>		<b>24</b>
3.1.1	Business requirements specification	Complex	8
3.1.2	Software requirements specification	Complex	8
3.1.3	Use case specification	Complex	8
<b>3.2</b>	<b>Designing</b>		<b>40</b>
3.2.1	System design	Complex	8
3.2.2	ERD	Complex	8
3.2.3	Database design	Complex	8
3.2.4	Detail design	Complex	8
3.2.5	UI design	Complex	8
<b>3.3</b>	<b>Implementation</b>		
<b>3.3.1</b>	<b>Implement base features</b>		<b>12</b>
3.3.1.1	Login	Medium	5
3.3.1.2	Register	Medium	5
3.3.1.3	Forget password	Simple	2
<b>3.3.2</b>	<b>Implement Admin features</b>		<b>10</b>
3.3.2.1	Manage account	Medium	5

3.3.2.3	Manage analytics and reporting	Medium	5
<b>3.3.3</b>	<b><i>Implement Manager features</i></b>		<b>41</b>
3.3.3.1	Manage staff account	Medium	5
3.3.3.2	Manage profile	Simple	2
3.3.3.5	Manage task	Complex	8
3.3.3.6	View contract	Simple	2
3.3.3.6	View renting request	Simple	2
3.3.3.7	Manage delivery task	Medium	5
3.3.3.8	Manage invoice	Complex	8
3.3.3.9	View schedule data	Simple	2
3.3.3.10	View dashboard	Simple	2
3.3.3.11	Manage membership rank	Medium	5
<b>3.3.4</b>	<b><i>Implement Website Staff features</i></b>		<b>38</b>
3.3.4.1	Manage profile	Simple	2
3.3.4.2	Manage term	Simple	2
3.3.4.3	Manage content	Simple	2
3.3.4.4	Manage category	Simple	2
3.3.4.5	Manage mechanical machinery	Complex	8
3.3.4.6	Manage machinery component	Complex	8
3.3.4.7	Manage machinery attributes	Simple	2
3.3.4.8	Manage machine serial number	Complex	8
3.3.4.9	Manage renting service	Simple	2
3.3.4.10	Manage machine check criteria	Simple	2
<b>3.3.5</b>	<b><i>Implement Technical Staff features</i></b>		<b>23</b>
3.3.4.1	Manage profile	Simple	2
3.3.4.2	Manage component replacement ticket	Complex	8
3.3.4.3	Manage machine task	Complex	8
3.3.4.4	Manage delivery task	Meidum	5
<b>3.3.5</b>	<b><i>Implement Customer features</i></b>		<b>54</b>
3.3.5.1	Manage profile	Simple	2

3.3.5.2	View machinery	Simple	2
3.3.5.3	View machinery detail	Simple	2
3.3.5.4	View machinery component	Simple	2
3.3.5.5	Manage renting request	Complex	8
3.3.5.6	Create machine check request	Medium	5
3.3.5.7	Cancel machine check request	Simple	2
3.3.5.8	Manage contract	Complex	8
3.3.5.9	View content	Simple	2
3.3.5.10	View membership rank	Simple	2
3.3.5.11	View invoice	Medium	5
3.3.5.12	Pay invoice	Complex	8
3.3.5.13	Manage address	Simple	2
3.3.5.14	View component replacement ticket	Simple	2
3.3.5.15	View renting service	Simple	2
<b>3.3.6</b>	<b><i>Implement System Handler</i></b>		<b>28</b>
3.3.6.1	Background Job Process Extend Contract	Medium	5
3.3.6.2	Background Job Complete Contract	Complex	8
3.3.6.3	Background Job Cancel Renting Request	Medium	5
3.3.6.4	Notification	Complex	10
<b>3.4</b>	<b><i>Testing</i></b>		<b>32</b>
3.4.1	Test plan	Complex	8
3.4.2	Unit test	Complex	8
3.4.3	Integration test	Complex	8
3.4.4	Test document	Complex	8
<b>3.5</b>	<b><i>Deployment</i></b>		<b>16</b>
3.5.1	Setup server	Complex	8
3.5.2	Deploy source code	Complex	8
<b>4</b>	<b><i>Monitoring and Controlling</i></b>		<b>10</b>
4.1	Track process	Medium	5
4.2	Track the document	Medium	5

<b>5</b>	<b>Closing</b>		<b>25</b>
5.1	Create Software User Guides	Complex	10
5.2	Create Final Project Report	Complex	10
5.3	Prepare slides for thesis defence	Medium	5
<b>Total Estimated Effort (man-days):</b>			<b>378</b>

Table 04 - Scope &amp; Estimation

## 1.2 Project Objectives

#	Testing Stage	Test Coverage	No. of Defects	% of Defect	Notes
1	Unit Test	70%	<10	22%	
2	Integration Test	80%	<15	33%	
3	System Test	80%	<20	44%	

Table 05 - Project Objectives

## 1.3 Project Risks

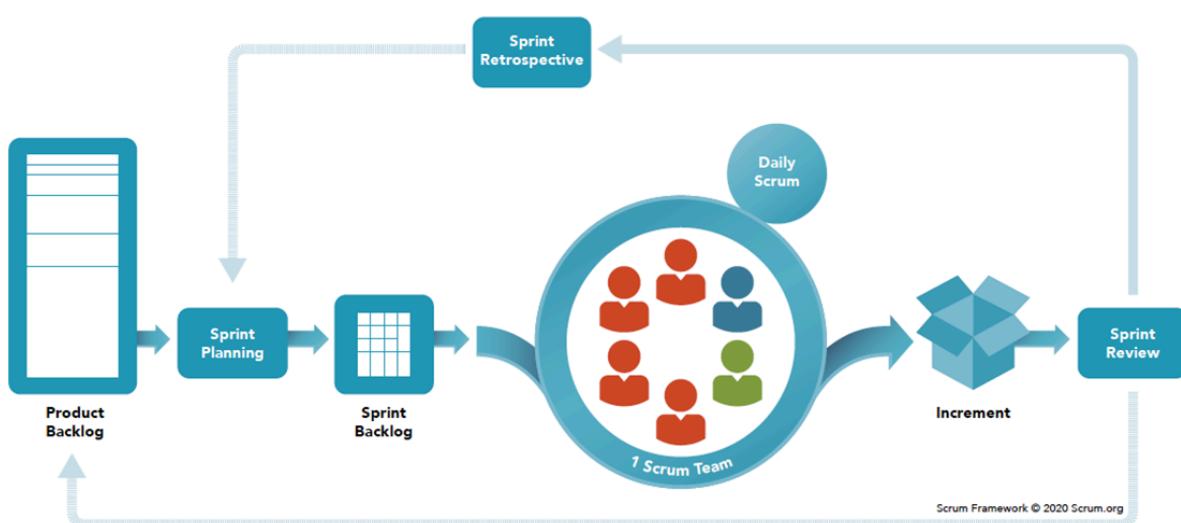
#	Risk Description	Impact	Possibility	Response Plans
1	Technology risk: cannot find the suitable solution for technique problems, the software cannot fulfil the expectation.	High	Medium	Do more research on official resources, discuss with mentor
2	Technology risk: host server dies	Medium	Low	Change host server
3	Requirement changes: requirements unexpected changes.	Critical	Medium	Choose another way of solution to respond to those changes.
4	Requirement out of scope: more requirement than expected and planned	Critical	Medium	Track progress regularly and review documents if a requirement is not planned.
5	Time risk: project deadlines cannot be met due to delays	High	Medium	Create a detailed timeline, prioritize tasks, and monitor progress regularly to mitigate delays

6	Training risk: Users are not sufficiently trained on how to use the new system	Medium	Medium	Provide comprehensive user training, create detailed user manuals, and offer ongoing support during the system implementation.
7	Integration risk: Difficulty in integrating the new system with existing processes or third-party tools	Medium	High	Conduct a thorough system requirements analysis and test integrations early to identify and resolve any issues
8	Third-party dependency risk: Delay or failure of third-party services (e.g., payment gateways, SMS services) used in the system	High	Medium	Maintain backup alternatives for critical services.
9	Testing risk: Insufficient testing leading to bugs or functionality issues in the live system	Critical	Medium	Allocate sufficient time and resources for rigorous testing, including unit, integration, and user acceptance testing (UAT), before the final deployment.

Table 06 - Project Risk

## 2. Management Approach

### 2.1 Project Process



*Figure 1: Project Process*

Reference: <https://www.scrum.org/learning-series/what-is-scrum/>

This project was developed using the Scrum model, which is a part of the Agile framework for project development. The Scrum model was chosen for the following reasons:

- Allows the team to work in sprints, breaking the project into smaller, manageable parts.
- Provides the flexibility to respond to changes in requirements, feedback, or market conditions.
- Promotes close collaboration between team members, stakeholders, and clients. Regular communication ensures that everyone is aligned with the project goals and can address issues promptly.
- With regular sprint reviews and retrospectives, the team can gather continuous feedback and make necessary adjustments to improve the product and processes.
- Can deliver features and functionalities faster, allowing users to experience the product sooner and provide early feedback.

## 2.2 Quality Management

To increase project quality and enhance the user experience, the team applies the following quality management approaches:

- The team follows industry standards and coding best practices to minimise defects during development.
- Before code is merged, it is reviewed by other team members to ensure that it meets quality standards and to catch potential issues early.
- The architecture and design are reviewed at key stages with the supervisor to ensure alignment with project requirements and scalability.
- Ensure all processes, meeting notes are well documented for future reference and improvement.
- Provide training for the team to ensure they are equipped with the necessary skills and knowledge to deliver quality work.
- Comprehensive system testing will be conducted to ensure that the entire application works as expected from the user's perspective. This includes testing workflows, user interfaces, and system interactions.

## 2.3 Training Plan

Training Area	Participants	When, Duration	Waiver Criteria
Github Action, CI/CD	All member	1-2 weeks	Mandatory
Deployment	Võ Minh Trí, Bùi Nguyễn Phúc Khang, Nguyễn Minh Nguyên	1-2 weeks	Mandatory

React, Typescript	Nguyễn Văn Hoàng Minh, Nguyễn Minh Nguyên	1-2 weeks	Mandatory
React Native	Nguyễn Minh Nguyên	1-2 weeks	Mandatory

*Table 07 - Training Plan*

### 3. Project Deliverables

#	Deliverable	Due Date	Notes
1	Project Plan	28/08/2024	Overall project plan.
2	Report I (Project Introduction Document)	05/09/2024	Overview of project goals, stakeholders, and scope to provide a foundation for understanding.
3	Report II (Project Management Plan)	05/09/2024	Defining scope estimation, processes, strategies for successful execution.
4	Code Back-end package	05/09/2024	Source code, unit test
5	Code Front-end package	05/09/2024	Source code, write test case and system test
6	Code Mobile package	05/09/2024	Source code, write test case and system test
7	Report III (Software Requirement Specification)	10/11/2024	Defining software functionalities, features, and user expectations.
8	Report IV (Software Design Document)	10/11/2024	Detailed design of software architecture, system components and interactions.
9	Testing Plan	10/11/2024	Write a test case and system test.
10	Report V (Test Documentation)	13/11/2024	Documentation outlining testing strategies, scenarios, and results to ensure software quality and reliability.
11	Report VI (Software User Guides)	13/11/2024	Instructions for users to effectively navigate and utilise the software
12	Code Front-end Release	25/11/2024	Release, deploy source code
13	Code Back-end Release	25/11/2024	Release, deploy source code
14	Code Mobile Release	25/11/2024	Release, deploy source code
15	Report VII (Final Project Report)	28/11/2024	Report all reports from 1 to 6

*Table 08 - Project Deliverables*

## 4. Responsibility Assignments

Full name	Role	Responsibility
Võ Thị Thanh Vân	Supervisor	<ul style="list-style-type: none"> <li>Provide user requirements</li> <li>Specify system features</li> <li>Review deliverables</li> <li>Supervise project status</li> </ul>
Nguyễn Minh Nguyên	Leader	<ul style="list-style-type: none"> <li>Determine project plan</li> <li>Assign tasks to a related member</li> <li>Track member's task progress</li> <li>Determine impediments and provide solutions to complete tasks</li> </ul>
Nguyễn Minh Nguyên Bùi Nguyễn Phúc Khang Nguyễn Văn Hoàng Minh Lý Ngọc Đăng Khoa Võ Minh Trí	Team members	<ul style="list-style-type: none"> <li>Analyse requirements and business rules</li> <li>Note meeting feedback</li> <li>Design UI</li> <li>Write documents</li> <li>Implement code</li> <li>Review code</li> <li>Implement test</li> </ul>

Table 09 - Responsibility Assignments

## 5. Project Communications

Communication Item	Who/ Target	Purpose	When, Frequency	Type, Tool, Method(s)
Daily meeting	Team members	<ul style="list-style-type: none"> <li>- Review task progress</li> <li>- Discuss and solve problems</li> </ul>	Every 2 days	- Google meet
Weekly Report	Supervisors Team members	<ul style="list-style-type: none"> <li>- Progress report</li> <li>- Report and handle problem</li> <li>- Review task, diagram, document</li> </ul>	Weekly	<ul style="list-style-type: none"> <li>- Zalo</li> <li>- Google meet</li> <li>- Offline meetings</li> </ul>

Table 10 - Project Communications

## 6. Configuration Management

### 6.1 Document Management

- Use GoogleDrive to save documents and for real-time editing on Microsoft Word.
- Use GoogleDrive to save a meeting report, meeting record, diagram, image, design, document to each category folder.

Reference: <https://drive.google.com/drive/folders/1te2G5NKcaT2Aq3M4-YAuPru1fH-3ma7X> (Private)

## 6.2 Source Code Management

- GitHub server to store source code.
- Follow the rule of team when using Git:
  - Commit and note the changes details often.
  - Review carefully before pushing into the development branch.
  - Fetch, review and resolve conflicts when merging usually.

GitHub Links:

- Back End: [https://github.com/phuckhangbui/Capstone\\_Project\\_BE.git](https://github.com/phuckhangbui/Capstone_Project_BE.git) (Private)
- Front End Management: [https://github.com/Nguyennm080503/Capstone\\_Project\\_FE\\_Management.git](https://github.com/Nguyennm080503/Capstone_Project_FE_Management.git) (Private)
- Front End Client: [https://github.com/Nguyennm080503/Capstone\\_Project\\_FE\\_Client.git](https://github.com/Nguyennm080503/Capstone_Project_FE_Client.git) (Private)
- Mobile Customer: [https://github.com/AlexVo18/Capstone\\_Mobile\\_Customer.git](https://github.com/AlexVo18/Capstone_Mobile_Customer.git) (Private)
- Mobile Technical Staff: [https://github.com/AlexVo18/Capstone\\_Mobile\\_Staff.git](https://github.com/AlexVo18/Capstone_Mobile_Staff.git) (Private)

## 6.3 Tools & Infrastructures

Category	Tools / Infrastructure
Technology	ReactJs (Front-end), C# (Back-end), React Native (Mobile)
Framework	.NET, React, React Native
Database	SQL Server
IDEs/Editors	Visual Studio Code, Visual Studio
Diagramming	Lucidchart
Documentation	Ms Office, Google Docs/Sheets
Version Control	GitHub (Source Codes), Google Drive (Documents)
Deployment server	Nginx, Docker
Project management	Google Sheets

Table 11 - Tools & Infrastructures

### III. Software Requirement Specification

#### 1. Product Overview

The Mechanical Machinery Rental and Management System (MMRMS) is a software solution for Thanh Luan Machinery and Equipment to streamline heavy machinery rentals, replacing manual processes. It offers features like equipment tracking, inventory management, job scheduling, and billing to improve efficiency, accuracy, and customer satisfaction through a centralized, user-friendly platform.

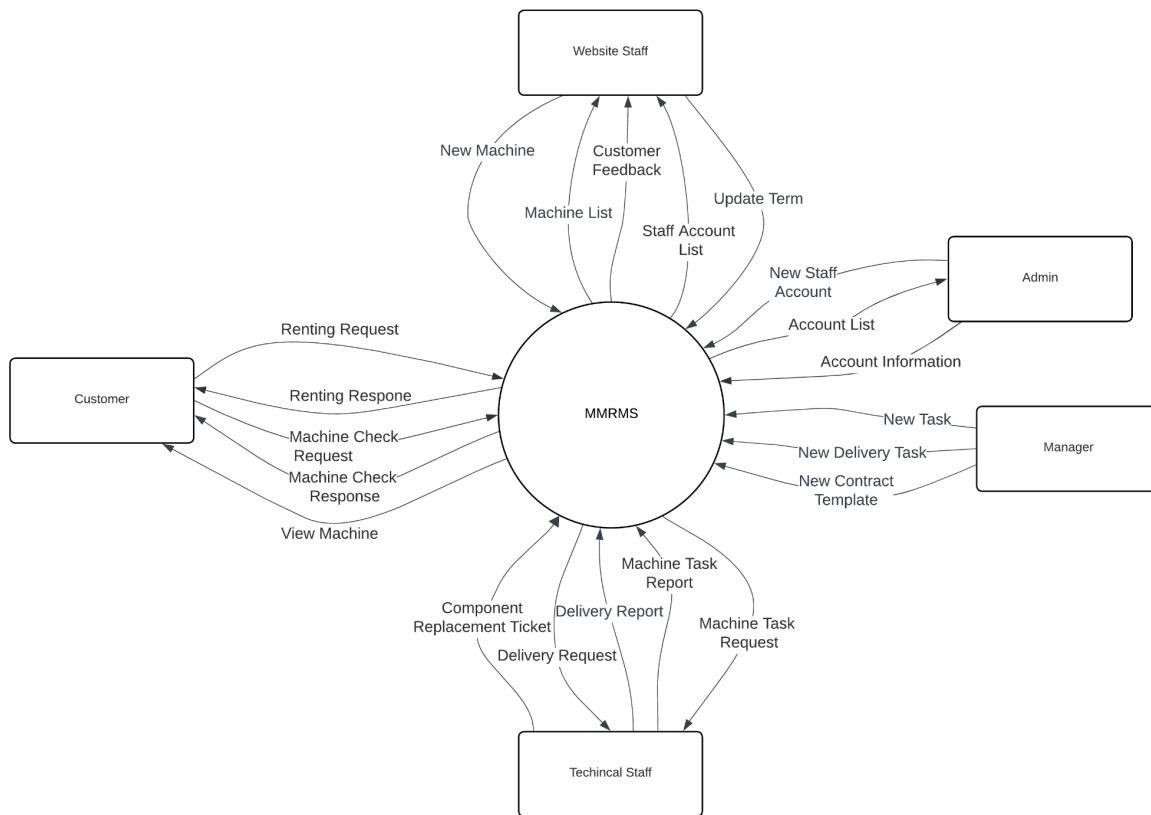


Figure 2. Context Diagram of the MMRMS

#### 2. User Requirements

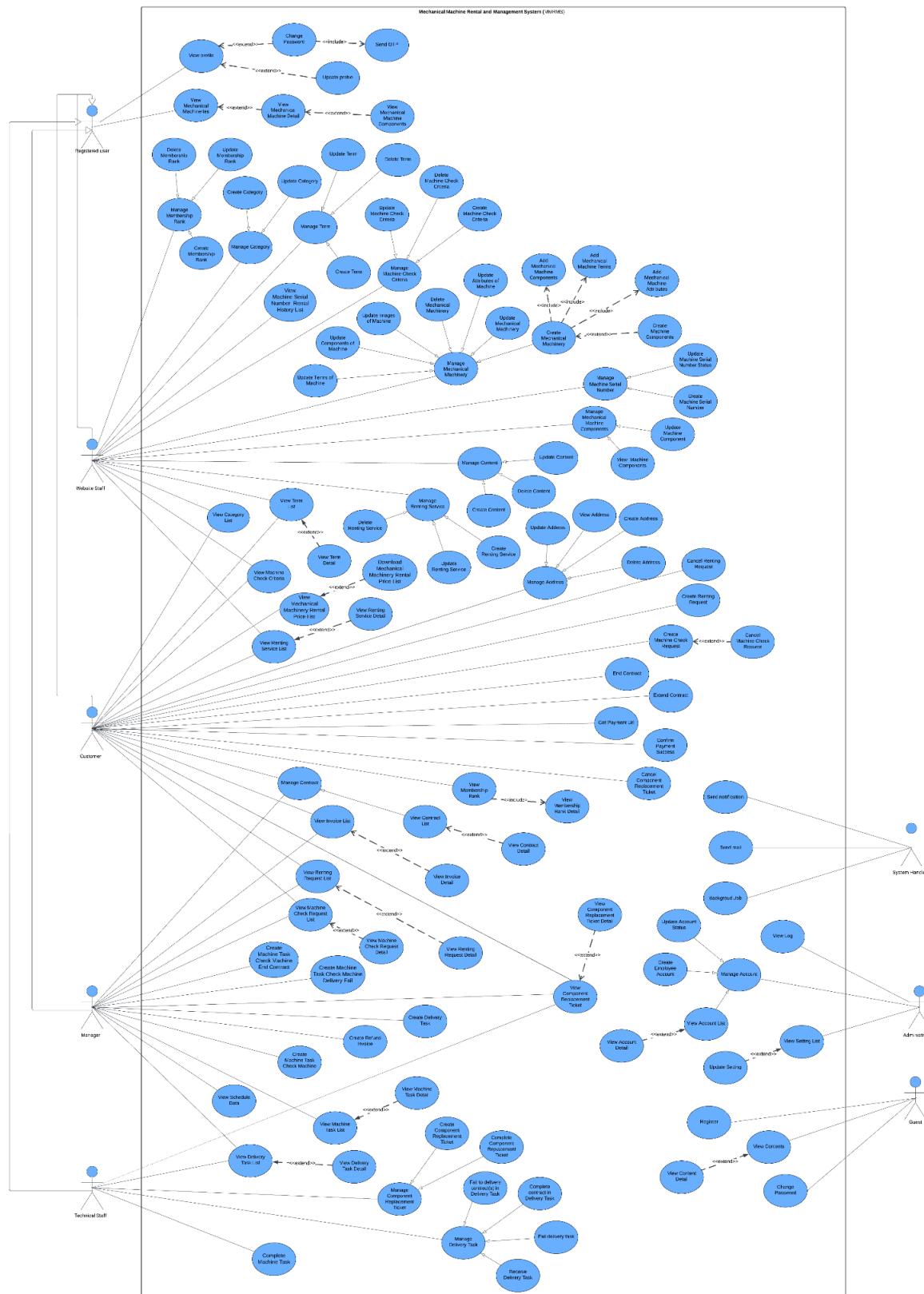
##### 2.1 Actors

#	Actor	Description
1	Guest	User who hasn't logged into the system.
2	Customer	Users can rent mechanical machinery by managing renting requests, contracts, invoices and machine check requests.
3	Website Staff	Users who are responsible for managing mechanical machinery, contents, machine check criteria, renting services, and terms.
4	Technical Staff	Users who are responsible for handling delivery and machine related tasks.
5	Manager	Users who are responsible for managing tasks and monitoring renting requests, contracts, and invoices.
6	Administrator	Admin will manage all accounts and system structure.

Table 12 - Actors

## 2.2 Use Cases

### **2.2.1 Diagram(s)**



*Figure 3. UseCase Diagram of MMRMS*

## 2.2.2 Descriptions

ID	Use Case	Actors	Use Case Description
1	Register	Guest	Allows "Guest" to create a new account.
2	Login	Customer, Web Staff, Technical Staff, Manager, Admin	Allows "User" to login into system with their role
3	Change password	Customer, Technical Staff, Website Staff, Manager	Allows "User" change their password
4	View profile	Customer, Technical Staff, Website Staff, Manager	Allows "User" view their personal information
5	Update profile	Customer, Technical Staff, Website Staff, Manager	Allows "User" update their personal information
6	View notification	Customer, Technical Staff, Website Staff, Manager, Administrator	Allows "User" view notification
7	Create Employee Account	Administrator	Allows "Administrator" to create an employee account.
8	View Account List	Administrator	Allows "Administrator" to view the list account.
9	View Account Detail	Administrator	Allows "Administrator" to view the detailed account.
10	Update Account	Administrator	Allows "Administrator" to update the account.
11	Lock Account	Administrator	Allows "Administrator" to lock the account.
12	View Setting List	Administrator	Allows "Administrator" to view the setting list.
13	Update Setting	Administrator	Allows "Administrator" to update setting attributes.
14	View Task Schedule	Manager	Allows "Manager" to view the daily schedule task of staff.
15	View Address List	Customer	Allows "Customer" to view the list address.
16	Create Address	Customer	Allows "Customer" to create an address.
17	Update Address	Customer	Allows "Customer" to update the address.
18	Delete Address	Customer	Allows "Customer" to delete the address.

19	View Term List	Customer, Website Staff	Allows “Customer”, “Website Staff” to view the list term.
20	View Term Detail	Customer, Website Staff	Allows “Customer”, “Website Staff” to view the detailed term.
21	Create Term	Website Staff	Allows “Website Staff” to create a term.
22	Update Term	Website Staff	Allows “Website Staff” to update the term.
23	Delete Term	Website Staff	Allows “Website Staff” to delete the term.
24	View Content List	Guest, Website Staff	Allows “User” to view the list content.
25	View Content Detail	Guest, Website Staff	Allows “User” to view the detailed content.
26	Create Content	Website Staff	Allows “Website Staff” to create content.
27	Update Content	Website Staff	Allows “Website Staff” to update the content.
28	Delete Content	Website Staff	Allows “Website Staff” to delete the content.
30	View Staff Account List	Manager	Allows “Manager” to view the list staff account.
31	View Staff Account Detail	Manager	Allows “Manager” to view the detailed staff account.
32	View Category List	Customer, Website Staff	Allows “User” to view the list of category
33	Create Category	Website Staff	Allows “Website Staff” to create a new category.
34	Update Category	Website Staff	Allows “Website Staff” to update the category.
35	View Membership Rank List	Customer, Website Staff	Allows “Customer”, “Website Staff” to view the list of membership ranks.
36	View Membership Rank Detail	Customer	Allows “Customer” to view the detailed membership rank.
37	Create Membership Rank	Website Staff	Allows “Website Staff” to create a membership rank.
38	Update Membership Rank	Website Staff	Allows “Website Staff” to update the membership rank.
39	Delete Membership Rank	Website Staff	Allows “Website Staff” to delete the membership rank.
40	Create Mechanical Machinery	Website Staff	Allows “Website Staff” to create new mechanical machinery.
41	Delete Mechanical Machinery	Website Staff	Allows “Website Staff” to delete the mechanical machinery.
42	View Component of Machine List	Customer, Website Staff	Allows “Customer”, “Website Staff” to view the list of components of the machine.
43	Update Mechanical Machinery	Website Staff	Allows “Website Staff” to update the mechanical machinery.

44	Update Terms of Machine	Website Staff	Allows "Website Staff" to update terms of the machine.
45	Update Images of Machine	Website Staff	Allows "Website Staff" to update images of the machine.
46	Update Attributes of Machine	Website Staff	Allows "Website Staff" to update the attributes of the machine.
47	Update Components of Machine	Website Staff	Allows "Website Staff" to update the status of the component of the machine.
48	View Mechanical Machinery List	Customer, Website Staff	Allows "Website Staff", "Customer" to view the list mechanical machinery
49	View Mechanical Machinery Detail	Customer, Website Staff	Allows "User" to view the mechanical machinery detail
50	View Mechanical Machinery Rental Price List	Customer, Website Staff	Allows "User" to view the mechanical machinery rental price list
51	Download Mechanical Machinery Rental Price List	Customer, Website Staff	Allows "User" to download the mechanical machinery rental price list
52	View Component Replacement Ticket List	Manager, Technical Staff, Customer	Allows "Manager", "Technical Staff", "Customer" to view the list of component replacement tickets.
53	View Component Replacement Ticket Detail	Manager, Technical Staff, Customer	Allows "Manager", "Technical Staff", "Customer" to view the detailed component replacement ticket.
54	Create Component Replacement Ticket	Technical Staff	Allows "Technical Staff" to create a component replacement ticket.
55	Complete Component Replacement Ticket	Technical Staff	Allows "Technical Staff" to complete a component replacement ticket.
56	Cancel Component Replacement Ticket	Customer	Allows "Customer" to cancel a component replacement ticket.
57	View Machine Serial Number List	Website Staff	Allows "Website Staff" to view the list of machine serial numbers.
58	View Machine Serial Number Detail	Website Staff	Allows "Website Staff" to view the detailed machine serial number.
59	View Machine Serial Number Rental History List	Website Staff	Allows "Website Staff" to view the rental history list of machine serial numbers.
60	Create Machine Serial Number	Website Staff	Allows "Website Staff" to create a new machine serial number.
61	Update Machine Serial Number Status	Website Staff	Allows "Website Staff" to update the status of the machine serial number.
62	Delete Machine Serial Number	Website Staff	Allows "Website Staff" to delete the machine serial number.
63	View Machine Serial Component list	Website Staff, Technical Staff	Allows "Website Staff" and "Technical Staff" to view the machine serial number component list.

64	Update Machine Serial Component status	Website Staff	Allows "Website Staff" to update the machine serial number component status.
65	View Machine Task List	Manager, Technical Staff	Allows "Manager", "Technical Staff" to view the list machine task.
66	View Machine Task Detail	Manager, Technical Staff	Allows "Manager", "Technical Staff" to view the detailed machine task.
67	Create Machine Task Check Machine	Manager	Allows "Manager" to create a machine task check machine.
69	Create Machine Task Check Machine End Contract	Manager	Allows "Manager" to create a machine task check machine before terminating the contract.
70	Create Machine Task Check Machine Delivery Fail	Manager	Allows "Manager" to create a machine task check machine when delivery fail.
71	Complete Machine Task	Technical Staff	Allows "Technical Staff" to change the task status to Completed.
72	View Delivery Task List	Manager, Technical Staff, Customer	Allows "Manager", "Technical Staff", "Customer" to view the list delivery task.
73	View Delivery Task Detail	Manager, Technical Staff, Customer	Allows "Manager", "Technical Staff", "Customer" to view the detailed delivery task.
74	Create Delivery Task	Manager	Allows "Manager" to create a delivery task.
75	Receive Delivery Task	Technical Staff	Allows "Technical Staff" to receive the delivery task.
76	Complete contract in Delivery Task	Technical Staff	Allows "Technical Staff" to update the status of the all contract in a delivery task when complete.
77	Fail to delivery contract(s) in Delivery Task	Technical Staff	Allows "Technical Staff" to update the status of the contract(s) in a delivery task when fail.
78	Fail delivery task	Technical Staff	Allows "Technical Staff" to update the status of delivery task when fail.
79	View Contract List	Manager, Customer	Allows "Manager", "Customer" to view the list contract.
80	View Contract Detail	Manager, Customer	Allows "Manager", "Customer" to view the detailed contract.
81	End Contract	Customer	Allows "Customer" to end the contract before time.
82	Extend Contract	Customer	Allows "Customer" to extend the contract.
83	View Invoice List	Manager, Customer	Allows "Manager", "Customer" to view the list invoice.
84	View Invoice Detail	Manager, Customer	Allows "Manager", "Customer" to view the detailed invoice.
85	Create Refund Invoice	Manager	Allows "Manager" to create a refund invoice to refund the deposit amount to the customer.

86	Get Payment Url	Customer	Allows "Customer" to get the payment url to pay the invoice.
87	Confirm Payment Success	Customer	Allows "System" to confirm the payment status success or not.
88	View Renting Service List	Website Staff, Customer	Allows "Website Staff", "Customer" to view the list renting service.
89	View Renting Service Detail	Website Staff, Customer	Allows "Website Staff", "Customer" to view the detailed renting service.
90	Create Renting Service	Website Staff	Allows "Website Staff" to create a renting service.
91	Update Renting Service	Website Staff	Allows "Website Staff" to update the renting service.
92	Delete Renting Service	Website Staff	Allows "Website Staff" to delete the renting service.
93	View Renting Request List	Manager, Customer	Allows "Manager", "Customer" to view the list renting request.
94	View Renting Request Detail	Manager, Customer	Allows "Manager", "Customer" to view the detailed renting request.
95	Create Renting Request	Customer	Allows "Customer" to create the renting request.
96	Initialize Renting Request	Customer	Allows "Customer" to review the renting request before creating.
97	Cancel Renting Request	Customer	Allows "Customer" to cancel the renting request.
98	View Machine Check Request List	Manager, Customer	Allows "Manager", "Customer" to view the list machine check request.
99	View Machine Check Request Detail	Manager, Customer	Allows "Manager", "Customer" to view the detailed machine check request.
100	View Machine Check Criteria List	Website Staff, Customer	Allows "Website Staff", "Customer" to view the list machine check criteria.
101	Create Machine Check Criteria	Website Staff	Allows "Website Staff" to create a machine check criteria.
102	Update Machine Check Criteria	Website Staff	Allows "Website Staff" to update the machine check criteria.
103	Delete Machine Check Criteria	Website Staff	Allows "Website Staff" to delete the machine check criteria.
104	Create Machine Check Request	Customer	Allows "Customer" to create a machine check request.
105	Cancel Machine Check Request	Customer	Allows "Customer" to cancel the machine check request.
106	View Data Dashboard	Administrator, Manager	Allows "Manager" or "Administrator" to view the statistical report dashboard.
107	View Log	Administrator	Allows "Administrator" to view log data of accounts in the system.
108	Background Job Complete Contract	System Handler	Allows "System Handler" to complete the contract on time.
109	Background Job Cancel Renting Request	System Handler	Allows "System Handler" to cancel the renting request after a day if

			“Customer” does not pay for the contract.
110	Background Job Process Extend Contract	System Handler	Allows “System Handler” to update the status of the extended contract and base contract on condition after the customer extends the new contract.
111	Background Job Process Overdue Contract Payment	System Handler	Allows “System Handler” to check that contract payment is overdue or not.

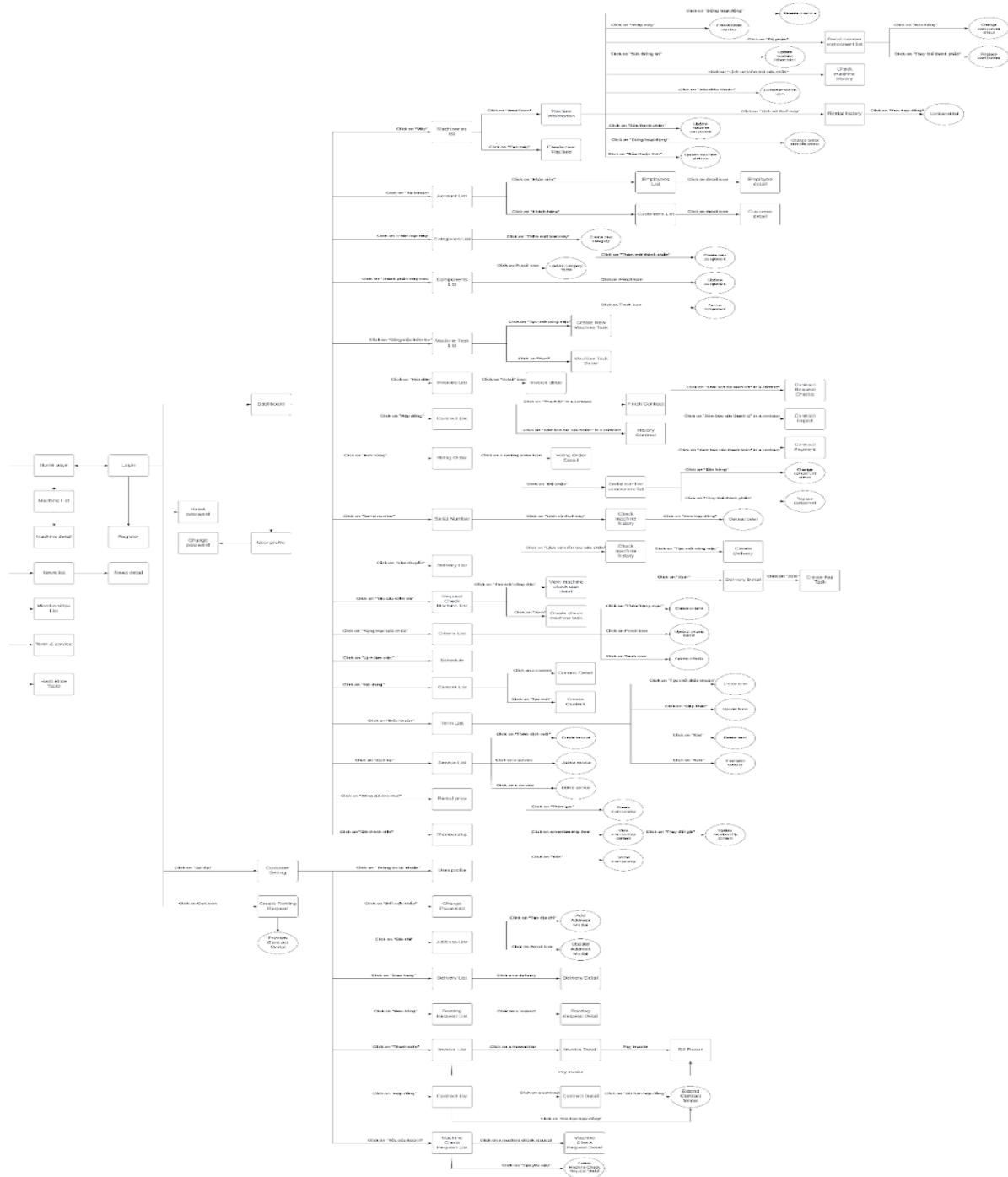
*Table 13 - Use case Descriptions*

### 3. Functional Requirements

#### 3.1 System Functional Overview

##### 3.1.1 Screens Flow

###### 3.1.1.1 Website application screen flow



*Figure 4. Screen Flow Website Application*

### 3.1.1.2 Mobile application screen flow

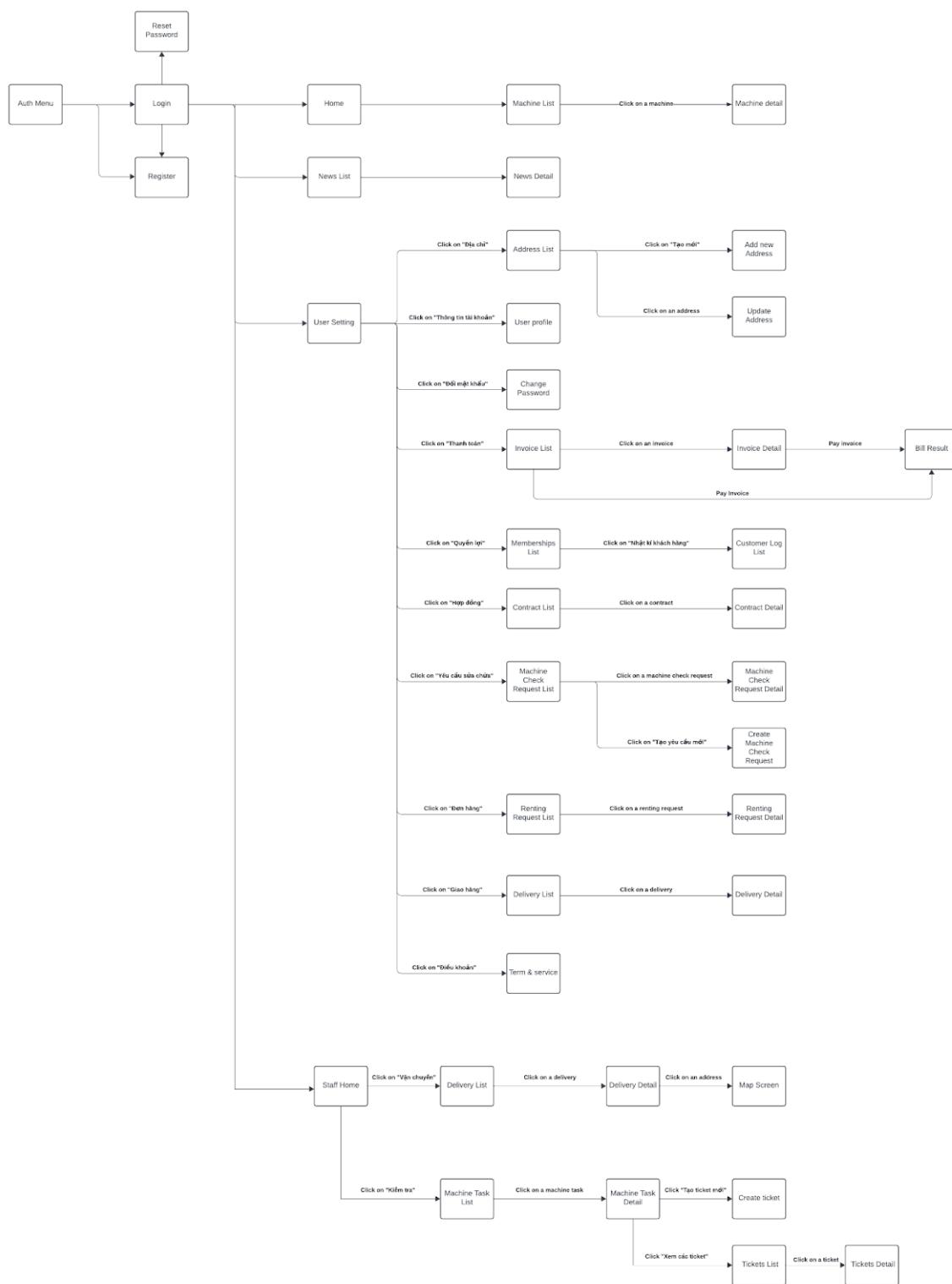


Figure 5. Screen Flow Mobile Application

### 3.1.2 Screen Descriptions

#### 3.1.2.1 Website screen description

#	Feature	Screen	Description
1	View List Machine	Home Page	View the system's list of available machines.
2	Login	Login	Allow users to log in to the website.
3	Register	Register	Allow users to register and create accounts into the website.
4	Reset password	Reset password	Allow users to reset password accounts on the website.
5	View Machine List	Machine List	Allow users to view the machine list that is available on the website.
6	View Machine Detail Add to Renting	Machine Detail	Allow users to view machine details on the website. Allow users to add machines into their renting request.
7	View News List	News List	Allow users to view news lists on the website.
8	View News Detail	News Detail	Allow users to view news in detail on the website.
9	View Membership List	Membership List	Allow users to view membership lists on the website.
10	View Term List View Service List	Term and Service	Allow users to view terms list on the website. Allow users to view services listed on the website.
11	View Statics List	Dashboard	Allow users to view statistics on the website.
12	View Profile Change Profile	User Profile	Allow users to view their profile on the website. Allow users to change their profile on the website.
13	Change Password	Change Password	Allow users to change their password on the website.
14	View All Machines List	Machine Management List	Allow users to view all machines listed on the website.
15	Create New Machine	Create new Machine	Allow users to create new machines on the website.
16	View Detail Machine	Machine Information	Allow users to view machine details on the website.
17	Change Status Machine View Serial Number of Machine	Machine Information	Allow users to change machine status on the website. Allow users to view all serial numbers of machine lists on the website.
18	Update Information of Machine	Update machine information	Allow users to update information about machines on the website.

19	Update Attribute of Machine Update	Update machine attribute	Allow users to update the attribute of the machine on the website.
20	Component of Machine Update	Update machine component	Allow users to update components of machines on the website.
21	Disable machine	Disable machine	Allow users to remove the machine from the store
22	Change Status Serial Number	Change serial number status	Allow users to update the status of the serial number machine on the website.
23	Update Machine Term For Machine	Update machine term	Allow users to update the machine term of the serial number machine on the website.
24	Create New Serial Number Machine	Create serial number	Allow users to create a new serial number machine on the website.
25	View Rental Machine History	Rental history	Allow users to view all history of rent serial number machines on the website.
26	View contract detail	Contract detail	Allow users to view the detail information of contract
27	View Serial Machine's Components Status View Log of Machine	Serial Machine's Component	Allow users to view all components of the serial number machine on the website. Allow users to view all logs of serial number machines on the website.
28	Change serial number component status	Change component status	Allow users to change the status of the components which exist in serial number.
29	Replace serial number component	Replace component	Allow users to replace the broken component by the new component.
30	View Repair Machine History	Check machine history	Allow users to view all repair history of serial number machines on the website.
31	View Staff List View Customer List	Account List	Allow users to view all staff on the website. Allow users to view all customers on the website.
32	View Staff Detail Change Status Staff	Employee Detail	Allow users to view information of staff on the website. Allow users to change the status of staff on the website.
33	View Customer Detail Change Status Customer	Customer Detail	Allow users to view customer information on the website. Allow users to change the status of customers on the website.
34	View Category List	Categories List	Allow users to view all categories of machine on the website.
35	Create New Category	Create new category	Allow users to create a new category of machine on the website.

36	Update Category	Update category name	Allow users to update the category of machine on the website.
37	View Component List	Components List	Allow users to view all components on the website.
38	Create New Component	Create new component	Allow users to create new components on the website.
39	Update Component	Update component	Allow users to update components on the website.
40	Delete Component	Delete component	Allow users to delete components on the website.
41	View Criteria List	Criteria List	Allow users to view all criterias on the website.
42	Update Criteria	Update criteria name	Allow users to update criteria on the website.
43	Delete Criteria	Delete criteria	Allow users to delete criteria on the website.
44	Create New Criteria	Create criteria	Allow users to create new criteria on the website.
45	View Term List	Term List	Allow users to view all terms on the website.
46	Update Term	Update term	Allow users to update terms on the website.
47	Delete Term	Delete term	Allow users to delete terms on the website.
48	Create New Term	Create term	Allow users to create new terms on the website.
49	View Term Detail	View term content	Allow users to view information of terms on the website.
50	View Service List	Service List	Allow users to view all services on the website
51	Update Service	Update service	Allow users to update service on the website.
52	Delete Service	Delete service	Allow users to delete service on the website.
53	Create New Service	Create service	Allow users to create new services on the website.
54	View Content List	Content List	Allow users to view all contents on the website. Allow users to delete content on the website.
55	View Content Detail	Content Detail	Allow users to view information about content on the website. Allow users to update content on the website. Allow users to change the status of content on the website.
56	Create New Content	Create Content	Allow users to create new content on the website.
57	View Member Ranking List	Membership	Allow users to view all membership rankings on the website.

58	Create New Member Ranking	Create membership	Allow users to create new membership rankings on the website.
59	View Member Ranking Detail	View membership content	Allow users to view information of membership ranking on the website.
60	Delete Member Ranking	Delete membership	Allow users to delete membership ranking on the website.
61	Update Member Ranking	Update membership content	Allow users to update membership ranking on the website.
62	View Renting Request List	Renting Request	Allow users to view all renting requests on the website.
63	View Renting Request Detail	Renting Request Detail	Allow users to view renting request details on the website.
64	View Request Check Machine List	Request Check Machine List	Allow users to view the request check machine list on the website.
65	View Request Check Machine Detail	Machine Check Request Detail	Allow users to view request check machine details on the website.
66	View Invoice List	Invoice List	Allow users to view all invoices on the website.
67	View Invoice List Detail	Invoice Detail	Allow users to view invoice details on the website.
68	View Contract List View Contract Detail	Contract List	Allow users to view all contracts on the website. Allow users to view contract information on the website.
69	View Check Contract History List	History Contract	Allows users to view all sewing repairs or check contract machines on the website.
70	Refund Deposit Amount View tickets created for the contract end process	Finish Contract	Allows users to liquidate contract deposits on the website. Allows users to view tickets created for the contract end process on the website.
71	View Machine Task List	Machine Task List	Allow users to view all machine tasks on the website.
72	View Machine Task Detail View Ticket of Machine Task Detail	View machine check task detail	Allow users to view information about machine tasks on the website. Allow users to view ticket details created in the task on the website.
73	Create New Machine Task	Create check machine task	Allow users to create new machine tasks on the website.
74	View Delivery Task List	Delivery Task List	Allow users to view all delivery tasks on the website.
75	View Delivery Task Detail	Delivery Task Detail	Allow users to view information of delivery tasks on the website.
76	Create New Delivery Task	Create New Delivery Task	Allow users to create new delivery tasks on the website.

77	Create New Delivery Task When Task Fail	Create Fail Task	Allow users to create new delivery tasks when a task fails on the website.
78	View Address List Delete Address	Address List	Allow users to view their address list on the website. Allow users to delete their address on the website.
79	Add New Address	Add Address Modal	Allow users to create a new address on the website.
80	Update Address	Update Address Modal	Allow users to update their address on the website.
81	View Renting Request List	Renting Request List	Allow users to view their renting requests list on the website.
82	View Renting Request Detail	Renting Request Detail	Allow users to view their renting request details on the website.
83	Create Renting Request	Create Renting Request	Allow users to create new renting request
84	Preview Contract	Preview Contract Modal	Allow users to preview their contract in their new renting request
85	View Delivery List	Delivery List	Allows users to view a list of their shipping orders on the website.
86	View Delivery Detail	Delivery Detail	Allows users to view their shipping order details on the website.
87	View Contract List	Contract List	Allows users to view their contract list on the website.
88	View Contract Detail	Contract Detail	Allows users to view their contract details on the website.
89	View Invoice List Pay Invoice	Invoice List	Allows users to view their invoice list on the website. Allows users to pay bills on the website.
90	View Invoice Detail	Invoice Detail	Allows users to view their invoice details on the website.
91	View Invoice Result	Bill Result	Allows users to return successful payment results on the website.
92	View Request Check Machine Cancel Machine Check Request	Machine Check Request List	Allows users to view their machine check requests list on the website. Allows users to cancel a machine check request on the website.
93	View Request Check Machine detail	Machine Check Request Detail	Allows users to view their machine check request detail on the website.
94	Create Machine Check Request	Create Machine Check Request Modal	Allows users to create a new machine check request on the website.
95	View Machine Check Request Detail	Machine Check Request Detail	Allows users to view their machine check request detail on the website.

96	View the Liquidation Report of The Liquidated Contract	Contract Report	Allows users to view liquidation reports of liquidated contracts.
97	View Repair History	Contract Request Checks	Allows users to view contract repair history.
98	View Contract Revenues	Contract Payment	Allows users to view contract revenues.
99	View Machine Renting Price	Rental Table	Allows users to view all of website machine renting prices
100	View Terms	Term & service	Allows users to view the website terms
101	View serial number list	Serial Number	Allows user to view the list of serial numbers by machine
102	View rental table Export excel file	Rental Price	Allow users to view the list of rent price with condition of a machine Allows user to export the rental price to excel file

Table 14 - Website screen description

### 3.1.2.2 Mobile screen description

#	Feature	Screen	Description
1	View Machine Task List View Delivery Task List	Staff Home	View a list of tasks the machine is processing. View a list of tasks the delivery is processing.
2	View Machine Task List	Machine Task List	Allow users to view their machine task list.
3	View Machine Task Detail	Machine Task Detail	Allow users to view their machine task details.
4	Complete Machine Task	Machine Task Detail	Allow users to complete their machine task.
5	Create Component Ticket of Machine Task	Create Ticket	Allow users to create tickets for repairing components in their machine task.
6	View Tickets of Machine Task	Ticket List	Allow users to view tickets for repairing components in their machine task.
7	View Ticket Detail of Machine Task	Ticket Detail	Allow users to view tickets for repairing components in their machine task details.
8	View Delivery Task	Delivery List	Allow users to view their delivery task list.

9	View Delivery Task Detail	Delivery Detail	Allow users to view their delivery task details.
10	Complete Delivery Task	Delivery Detail	Allow users to complete their delivery task.
11	Receive Delivery Task	Delivery Detail	Allow users to receive their delivery task.
12	Fail Delivery Task	Delivery Detail	Allow users to fail their delivery task.
13	Login	Login	Allow users to log in to the app.
14	Reset Password	Reset Password	Allow users to reset their account password
15	Register	Register	Allow users to register an account
16	View Latest Machine	Home	View the home screen of the app
17	View Machine List	Machine List	Allow users to view and filter machines that are available
18	View Machine Detail	Machine Detail	Allow users to view machine detail
19	View Content List	News List	Allow users to view the news uploaded to the app
20	View Content Detail	News Detail	Allow users to view news detail
21	View Address List	Address List	Allow users to view their account's addresses
22	Create Address	Add New Address	Allow users to add a new address
23	Update Address Delete Address	Update Address	Allow users to update an address
24	View Profile Update Profile	User Profile	Allow users to view and update their profile
25	Update Password	Change Password	Allow users to change their account password
26	View Invoice List	Invoice List	Allow users to view their invoices
27	View Invoice Detail Pay Invoice Cancel Ticket Payment	Invoice Detail	Allow users to view the invoice detail and pay for it
28	View Invoice Result	Bill Result	Allow users to view the result of the invoice payment
29	View Membership List	Memberships List	Allow users to view the membership ranks the app has

30	View Customer Membership Logs	Customer Log List	Allow users to view their account ranking history
31	View Contract List	Contract List	Allow users to view their contracts
32	View ContractDetail Cancel Contract	Contract Detail	Allow users view contract detail and has the option to cancel it
33	View Machine Check Request List	Machine Check Request List	Allow users to view their machine check requests
34	View Machine Check Request List Cancel Machine Check Request	Machine Check Request Detail	Allow users to view machine check request detail and has the option to cancel it
35	Create Machine Check Request	Create Machine Check Request	Allow users to create new machine check request
36	View Renting Request List	Renting Request List	Allow users to view their renting request
37	View Renting Request Detail Cancel Renting Request Detail	Renting Request Detail	Allow users to view renting request detail and has the option to cancel it
38	View Delivery List	Delivery List	Allow users to view their delivery list
39	View Delivery Detail	Delivery Detail	Allow users to view delivery detail
40	View Terms	Term & Service	Allow users to view the app term and service

Table 15 - Mobile screen description

### 3.1.3 Screen Authorization

#### 3.1.3.1 Website Screen Authorization

Screen	Customer	Manager	Website Staff	Admin
Home Page	X			
Login	X	X	X	X
Register	X			
Reset password	X			
Machine List	X			
Machine Detail				
<i>View Machine Detail</i>	X			
<i>Add to Renting</i>	X			
News List	X			
News Detail	X			

Screen	Customer	Manager	Website Staff	Admin
Membership List	X			
Term and Service				
<i>View Term List</i>	X			
<i>View Service List</i>	X			
Dashboard		X		X
User Profile				
<i>View Profile</i>	X	X	X	
<i>Change Profile</i>	X	X	X	
Change Password	X	X	X	
Machine Management List			X	
Create new Machine			X	
Machine Information				
<i>View Detail Machine</i>			X	
<i>Change Status Machine</i>			X	
<i>View Serial Number of Machine</i>			X	
<i>Update Attribute of Machine</i>			X	
<i>Update Component of Machine</i>			X	
<i>Update Information Serial Number of Machine</i>			X	
<i>Change Status Serial Number</i>			X	
<i>Update Machine Term For Machine</i>			X	
Create Serial Number			X	
Serial Machine's Components Status				
<i>View Serial Machine's Components Status</i>			X	
<i>View Log of Machine</i>			X	
Maintenance history			X	
Account List				
<i>View Staff List</i>		X		X
<i>View Customer List</i>		X		X
Employee Detail				
<i>View Staff Detail</i>		X		X
<i>Change Status Staff</i>				X
Customer Detail				
<i>View Customer Detail</i>		X		X
<i>Change Status Customer</i>				X
Categories List				
<i>View Category List</i>			X	
<i>Update Category</i>			X	
<i>Create New Category</i>			X	
Components List				
<i>View Component List</i>			X	
<i>Update Component</i>			X	
<i>Delete Component</i>			X	

Screen	Customer	Manager	Website Staff	Admin
Create New Component			X	
Criteria List				
View Criteria List			X	
Update Criteria			X	
Delete Criteria			X	
Create New Criteria			X	
Term List				
View Term List			X	
Update Term			X	
Delete Term			X	
Create New Term			X	
View Term Detail			X	
Service List				
View Service List			X	
Update Service			X	
Delete Service			X	
Create New Service			X	
Content List				
View Content List			X	
Delete Content			X	
Content Detail				
View Content Detail			X	
Update Content			X	
Change Status Content			X	
Create Content			X	
Membership				
View Member Ranking List			X	
Update Member Ranking			X	
Delete Member Ranking			X	
Create New Member Ranking			X	
View Member Ranking Detail			X	
Renting Request			X	
Renting Request Detail			X	
Request Check Machine List				
View Request Check Machine List			X	
View Request Check Machine Detail			X	
Invoice List			X	
Invoice Detail			X	
Contract List				
View Contract List			X	
View Contract Detail			X	
History Contract			X	
Finish Contract				
Refund Deposit Amount			X	
View tickets created for the			X	

Screen	Customer	Manager	Website Staff	Admin
<i>contract end process</i>				
Machine Task List		X		
Machine Task Detail				
View Machine Task Detail		X		
View Ticket of Machine Task Detail		X		
Create New Machine Task		X		
Delivery Task List		X		
Delivery Task Detail		X		
Create New Delivery Task		X		
Create Fail Task		X		
Address List				
View Address List	X			
Add New Address	X			
Update Address	X			
Delete Address	X			
Renting Request List	X			
Renting Request Detail	X			
Create Renting Request	X			
Preview Contract	X			
Delivery List	X			
Delivery Detail	X			
Contract List	X			
Contract Detail	X			
Invoice List				
View Invoice List	X			
Pay Invoice	X			
Invoice Detail	X			
Bill Result	X			
Machine Check Request List				
View Request Check Machine	X			
Create Machine Check Request	X			
Cancel Machine Check Request	X			
Machine Check Request Detail	X			

Table 16 - Website Screen Authorization

### 3.1.3.2 Mobile Screen Authorization

Screen	Customer	Technical Staff
Staff Home		X
Machine Task List		X
Machine Task Detail		
View Machine Task Detail		X
Complete Machine Task		X
Create Ticket		X
Ticket List		X

Ticket Detail		X
Delivery List		X
Delivery Detail		
View Delivery Task Detail		X
Complete Delivery Task		X
Receive Delivery Task		X
Fail Delivery Task		X
Login	X	X
Register	X	
Reset Password	X	
Home	X	
Machine List	X	
Machine Detail	X	
News List	X	
News Detail	X	
User Setting	X	
Address List	X	
Add New Address	X	
Update Address		
Update Address	X	
Delete Address	X	
User Profile		
View Profile	X	
Update Profile	X	
Change Password	X	
Invoice List	X	
Invoice Detail		
View Invoice Detail	X	
Cancel Ticket Payment	X	
Pay Invoice	X	
Bill Result	X	
Memberships List	X	
Customer Log List	X	
Contract List	X	
Contract Detail		
View Contract Detail	X	
Cancel Contract	X	
Machine Check Request List	X	
Machine Check Request Detail		
View Machine Check Request Detail	X	
Cancel Machine Check Request	X	
Create Machine Check Request	X	
Renting Request List	X	
Renting Request Detail		
View Renting Request Detail	X	
Cancel Renting Request	X	

Delivery List	X	
Delivery Detail	X	
Term & Service	X	

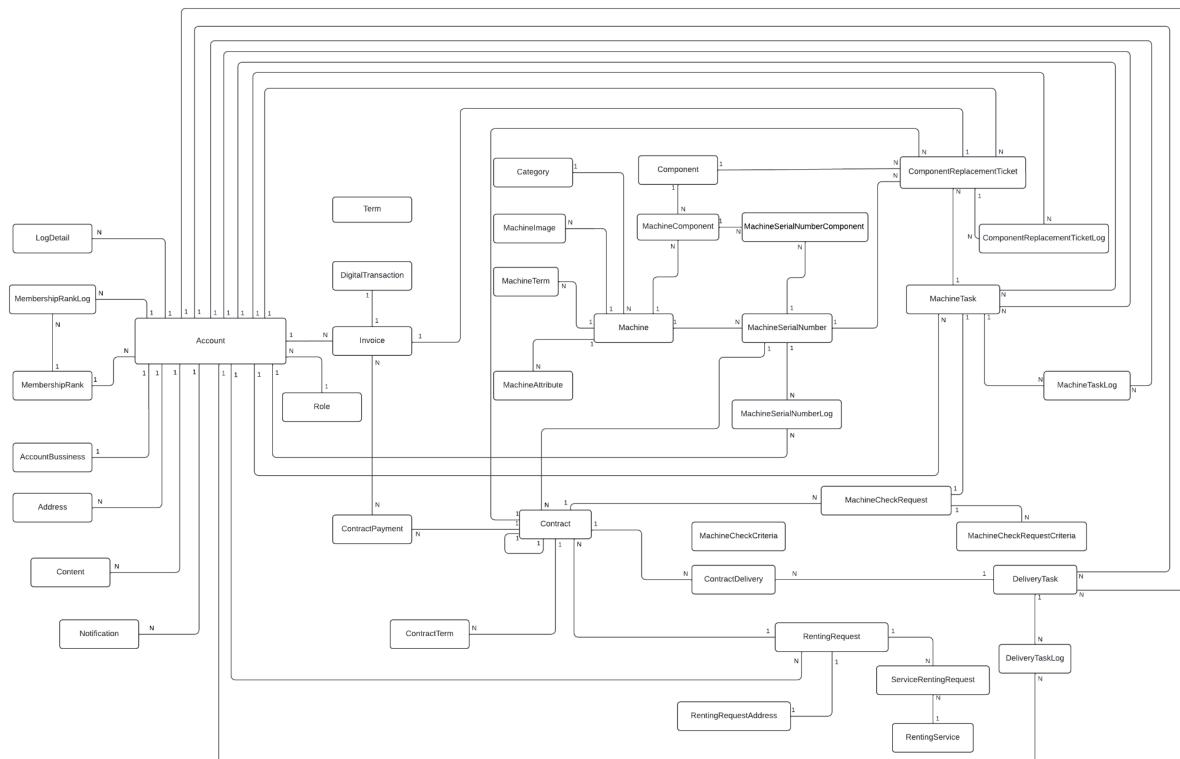
*Table 17 - Mobile Screen Authorization*

### **3.1.4 Non-Screen Functions**

#	Feature	System Function	Description
1	Authentication	Authenticate users	Generate JWT tokens for user authentication and validates them for secure access.
2	Email	Send mails	Send mail to the user when they register a new account and get an OTP to verify their account, or the employee gets their account information to login when the administrator creates a new account.
3	Background Job	Schedule background job	Manage background tasks in the system.
4	Notification	Send notifications	Sends notifications to user devices using Firebase.

*Table 18 - Non-Screen Functions*

### **3.1.5 Entity Relationship Diagram**



*Figure 6. Entity Relationship Diagram*

**Entities Description**

#	Entity	Description
1	Account	Stores user information and credentials.
2	Role	Defines user roles in the system.
3	Notification	Records notifications sent to users.
4	LogDetail	Records user login event logs.
5	MembershipRank	Represents membership tiers for customers.
6	MembershipRankLog	Logs changes in customer membership ranks.
7	AccountBusiness	Stores business information of customers.
8	Address	Store address of customers.
9	Content	Contains news, articles, or system-related content.
10	Term	Defines terms and conditions.
11	Machine	Represents machinery available for rent.
12	Category	Groups machines into categories.
13	MachineTerm	Represents the term of each machine.
14	MachineAttribute	Stores additional properties of machines.
15	MachineImage	Stores images related to machines.
16	Component	Represents components used in machines.
17	MachineComponent	Links machines to their components.
18	MachineSerialNumber	Tracks individual machine units by serial number.
19	MachineSerialNumberLog	Logs activities related to machine serial numbers.
20	MachineSerialNumberComponent	Links serial numbers to their components.
21	RentingRequest	Records customer requests for renting machines.
22	RentingRequestAddress	Stores delivery addresses for renting requests.
23	RentingService	Represents services offered with renting requests.
24	ServiceRentingRequest	Links renting requests to requested services.
25	Contract	Represents agreements between the company and customers for renting machines.
26	ContractTerm	Store term of each contract.
27	ContractPayment	Tracks payments related to contracts.
28	Invoice	Records billing details for contract payments or component replacement tickets.
29	DigitalTransaction	Tracks online or digital payment transactions.
30	DeliveryTask	Records tasks related to delivering machines.
31	DeliveryTaskLog	Logs actions performed in delivery tasks.
32	ContractDelivery	Links contracts to delivery information.
33	MachineCheckRequest	Represents requests to check machine conditions.
34	MachineCheckCriteria	Defines criteria for machine checks.
35	MachineCheckRequestCriteria	Links check requests to specific criteria.
36	MachineTask	Store task of technical staff.
37	MachineTaskLog	Logs actions performed on machine tasks.
38	ComponentReplacementTicket	Represents tickets for replacing machine components.
39	ComponentReplacementTicketLog	Logs activities related to replacement tickets.

Table 19 - Entities Description

## 3.2 Web Application

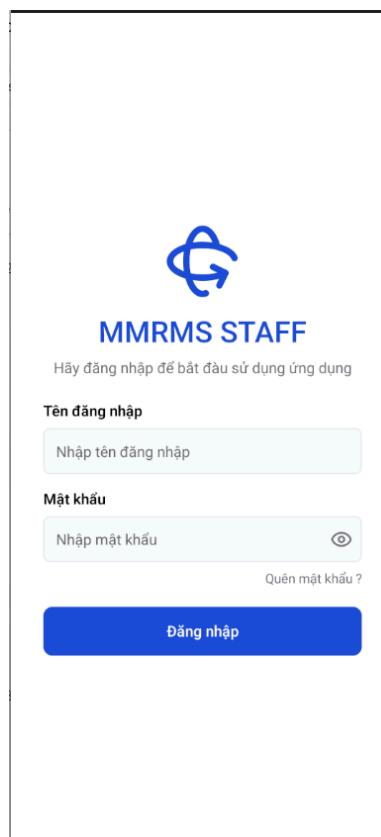
### 3.2.1 Authentication

#### 3.2.1.1. Management Login (Management Role)

- Function trigger: Unauthenticated management account request login to the system by tapping on the “Đăng nhập” button.
- Function description :
  - Actors : Administrator, Manager, Web Staff, Technical Staff.
  - Purpose : Management account logins to the system to verify role, give them access to more features in the management system.
- Screen layout :

The screenshot shows a login interface for the MMRMS system. At the top, the text "MMRMS" is displayed. Below this is a form with two required fields: "Tên đăng nhập \*" and "Mật khẩu \*". To the right of the password field is a small eye icon for password visibility. Below the fields is a link "Quên mật khẩu?". At the bottom of the form is a large blue button labeled "Đăng Nhập".

Figure 7. Login Management screen



*Figure 8. Login Technical Staff in Mobile screen*

- Function details :
  - Pre-condition : Unauthenticated management role must have an account.
  - Post condition:
    - Success: Unauthenticated user successfully login .
    - Failed: Show message to inform the error when wrong username or password.
    - Failed: Show error message when account was banned.
  - Data:
    - Username : text
    - Password : text
  - Business rule: BR-01, BR-02

### 3.2.1.2. Customer Login

- Function trigger : Unauthenticated user requests login to the system by tapping on the “Đăng nhập” button.
- Function description :
  - Actors : Customer.
  - Purpose : User logs in to the system to a verified account, giving them access to more features in the system.
- Screen layout :

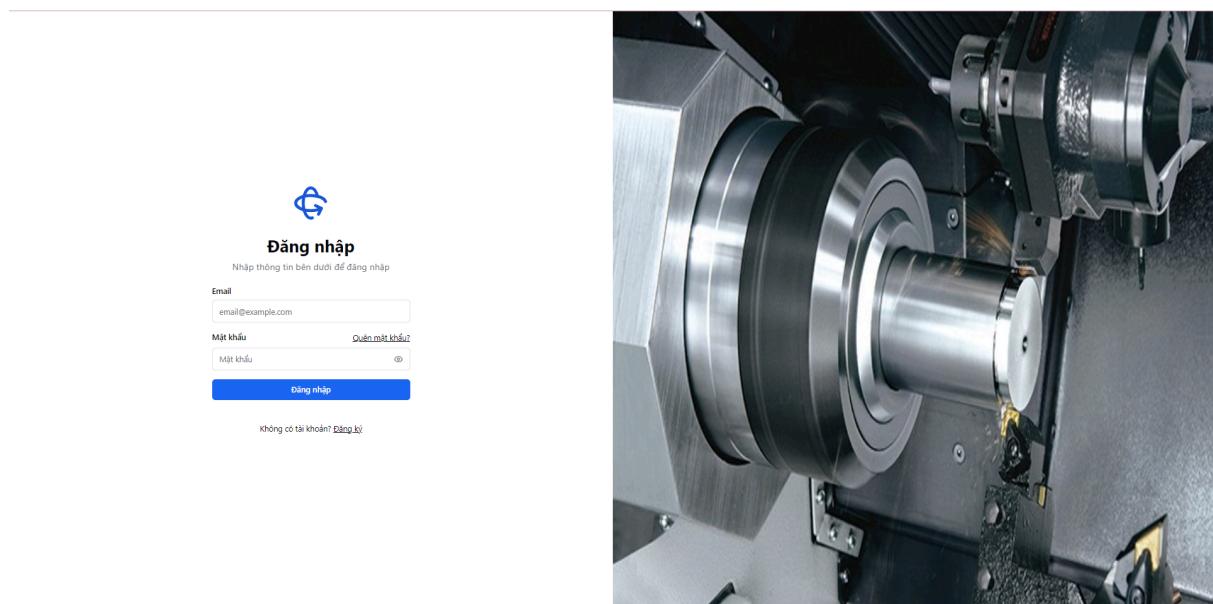


Figure 9. Login Client Web screen



Figure 10. Login Customer Mobile screen

- Function details :
  - Pre-condition : Unauthenticated user role must have an account.
  - Post condition:
    - Success: Unauthenticated user successfully login .
    - Failed: Show message to inform the error when wrong username or password.
    - Failed: Show error message when account was banned.

- Data :
  - Email : text
  - Password : text
- Business rule: BR-01

### 3.2.1.3. Customer Register

- Function trigger : Unauthenticated user requests to register an account by tapping on the “Đăng ký” button.
- Function description :
  - Actors : Customer.
  - Purpose : Users register an account to be able to login to the system, giving them access to more features in the system.
- Screen layout :



 **Đăng ký**

Nhập thông tin bên dưới để tạo tài khoản

1 Thông tin tài khoản → 2 Thông tin cá nhân

Email *	<input type="text" value="email@example.com"/>
Mật khẩu *	<input type="password"/>
Nhập lại mật khẩu *	<input type="password"/>

[Tiếp theo](#)

Đã có tài khoản? [Đăng nhập](#)

Figure 11. Register Account Web screen 1



 **Đăng ký**

Nhập thông tin bên dưới để tạo tài khoản

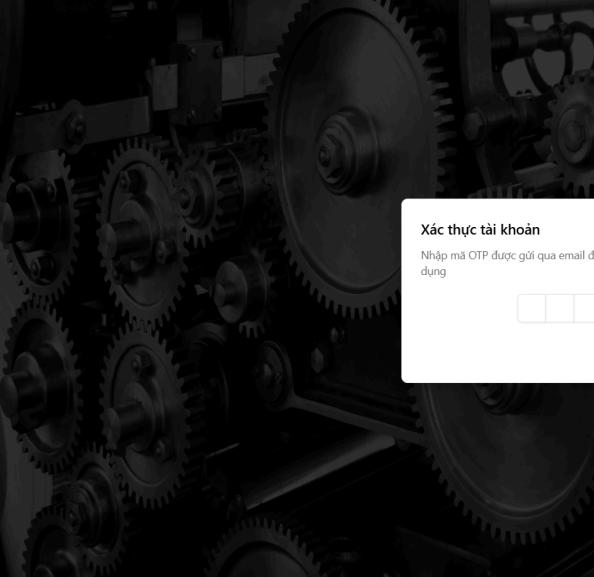
1 Thông tin tài khoản → 2 Thông tin cá nhân

Họ và tên *	Số điện thoại *
<input type="text" value="Họ và tên"/>	<input type="text" value="Số điện thoại"/>
Ngày sinh *	<input type="text" value="Chọn ngày sinh"/>
Giới tính *	Chức vụ *
<input type="text" value="Chọn giới tính"/>	<input type="text" value="Chọn chức vụ"/>
Mã số thuế *	
<input type="text" value="Mã số thuế"/>	

[Quay lại](#) [Tạo tài khoản](#)

Đã có tài khoản? [Đăng nhập](#)

Figure 12. Register Account Web screen 2



The screenshot shows a web-based account registration process. At the top right, there is a logo consisting of a stylized 'G' inside a circle. Below it, a green checkmark icon with the text "Tạo tài khoản thành công, xin hãy xác thực tài khoản để bắt đầu sử dụng" (Account creation successful, please verify your account to start using it) is displayed. A message box in the center says "Nhập thông tin bên dưới để tạo tài khoản" (Enter the following information to create an account). The main form has two tabs: "Thông tin tài khoản" (Account information) and "Thông tin cá nhân" (Personal information). The "Thông tin tài khoản" tab is active. It contains fields for "Họ và tên" (Name) with the value "Lê Minh Tuấn", "Số điện thoại" (Phone number) with the value "0798333342", "Ngày sinh" (Date of birth) with the value "12/01/2000", "Giới tính" (Gender) with the value "Nam", "Chức vụ" (Position) with the value "Nhân viên", and "Mã số thuế" (Tax ID) with the value "0317025010". There are also "Quay lại" (Back) and "Tạo tài khoản" (Create account) buttons. At the bottom left, there is a link "Đã có tài khoản? Đăng nhập" (Already have an account? Log in).

Figure 13. Register Account Web screen 3: OTP Authentication



**MMRMS**

Nhập email và mật khẩu để đăng ký tài khoản

**Email \***

**Mật khẩu \***

**Nhập lại mật khẩu \***

Tiếp theo

Đã có tài khoản? [Đăng nhập](#)

Figure 14. Register Account Mobile screen 1

← Nhập thông tin cá nhân



## MMRMS

Nhập thông tin cá nhân để hoàn tất việc thiết lập tài khoản

**Họ và tên \***  
Trần Anh Tâm

**Ngày sinh \*** 24-11-2003      **Giới tính \*** Nam

**Số điện thoại \*** 0765423123      **Chức vụ \*** Nhân viên

**Mã số thuế \*** 2700343126

Công ty: CÔNG TY TNHH ANH LÂM  
Địa chỉ: KM 5, Thị Trấn Thiên Tôn, Huyện Hoa Lư, Tỉnh Ninh Bình, Việt Nam

**Tạo tài khoản**

Figure 15. Register Account Mobile screen 2

← Nhập mã xác thực

Mã OTP đã được gửi thông qua email:

Xyz@gmail.com

1 2 3 -  
4 5 6 --  
7 8 9 ✖  
, 0 . ✓

Vui lòng chờ 55 giây để có thể gửi mã xác thực mới

Figure 16. Register Account Mobile screen 3: OTP Authentication

- Function details :
  - Pre-condition : The email user provided must exist to get the OTP
  - Post condition:
    - Success: Unauthenticated user successfully register an account.
    - Failed: Show message to inform whether the email have already existed or OTP is not valid
  - Data:
    - Email : text
    - Password : text
    - ConfirmPassword : text
    - Name : text
    - BirthDate : Date
    - Phone : text
    - Gender : text
    - Company: text
    - TaxCode : text
    - Position : text
    - Address : text
    - Otp: text
  - Business rule: BR-03, BR-04, BR-05, BR-07, BR-11, BR-61

### 3.2.1.4. Customer Forget Password

- Function trigger : Unauthenticated user requests to change their password when they forget it by tapping on the “Quên mật khẩu?” button.
- Function description :
  - Actors : Customer.
  - Purpose : User forgets the password to the account and want to retrieve it back through the use of their email
- Screen layout :





### Đổi mật khẩu

Nhập thông tin bên dưới để đổi mật khẩu

Email \*

Mật khẩu mới \*

Nhập lại mật khẩu mới \*

Đã nhớ mật khẩu? [Đăng nhập](#)

Figure 17. Forget Password Web screen

← Quên mật khẩu



**MMRMS**

Nhập thông tin để đổi mật khẩu tài khoản

Email \*



Mật khẩu mới \*

Nhập lại mật khẩu mới \*

Đã nhớ mật khẩu? [Đăng nhập](#)

Figure 18. Forget Password Mobile screen

- Function details :
  - Pre-condition : Unauthenticated user role must have an account.
  - Post condition:
    - Success: Unauthenticated user successfully change their account's password
    - Failed: Show message to inform the error when email doesn't exist or invalid OTP
  - Data:
    - Email : text
    - Otp: text
    - NewPassword : text
    - ConfirmNewPassword : text
  - Business rule: BR-06, BR-07

#### 3.2.1.4. Customer Change Password

- Function trigger : User clicks on the “Đổi mật khẩu” tab to navigate to the Change Password page
- Function description :
  - Actors : Customer.
  - Purpose : User wants to change their account's password
- Screen layout :

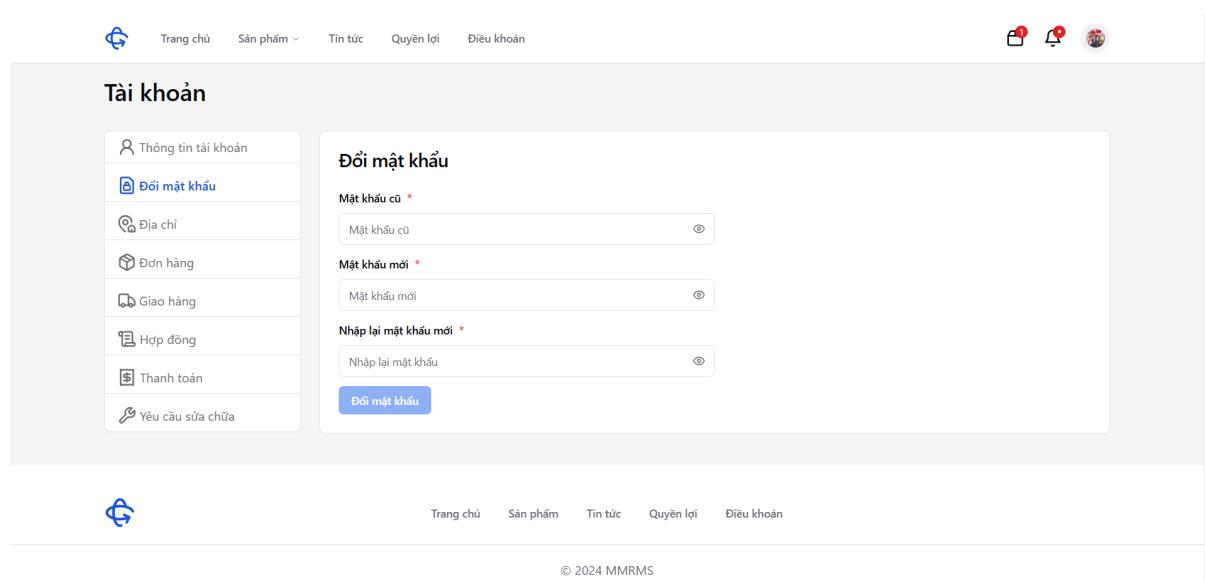


Figure 19. Change Password Web screen

← Thay đổi mật khẩu

---

**Mật khẩu cũ \***

**Mật khẩu mới \***

**Nhập lại mật khẩu mới \***

**Đổi mật khẩu**

Figure 20. Change Password Mobile screen

- Function details :
  - Pre-condition :
    - User is logged in the website
    - User knows the old password
  - Post condition:
    - Success: User successfully change their account's password
    - Failed: System display error toast message

- Data:
  - Old: text
  - NewPassword : text
  - ConfirmNewPassword : text
- Business rule: N/A

### 3.2.2 Account Management:

#### 3.2.2.1. View Staffs List

- Function trigger: Administrator click “Tài khoản” on sidebar choose tab “Nhân viên”.
- Function description:
  - Actors: Administrator, Manager.
  - Purpose: Users can view the staff list in the system.
- Screen layout:

Tên	Email	Số điện thoại	Ngày tạo	Vị trí	Tình trạng
Trần Phước Khoa	phuockhoa123@gmail.com	0945675848	25-11-2024	Nhân viên kỹ thuật	<span>Đang hoạt động</span>
Trần Phan Huy	huynhanh123@gmail.com	0945675848	25-11-2024	Nhân viên kỹ thuật	<span>Đang hoạt động</span>
Đinh Hoàng Thái	thaithoang123@gmail.com	0945675848	25-11-2024	Nhân viên kỹ thuật	<span>Đang hoạt động</span>
Nguyễn Hoàng Long	nguyennmse1721@fpt.edu.vn	0463748364	20-11-2024	Nhân viên kỹ thuật	<span>Đang hoạt động</span>
KhoaTechStaff	khoatechstaff@yopmail.com	0123456789	14-11-2024	Nhân viên kỹ thuật	<span>Đang hoạt động</span>

Figure 21. Staff Management screen

- Function Details:
  - Pre-condition:
    - User is successfully logs into the system with an administrator account.
    - User has permissions to access the system.
    - User click “Tài khoản” section
    - User is in “Nhân viên” tab
  - Post condition:
    - Success: When it is created successfully, it will show the list.
  - Data
    - No : number
    - Name : text
    - Email : text
    - Phone : text
    - Date Create : text
    - Position : text
    - Status: text
  - Business rule: N/A

### 3.2.2.2. View Customers List

- Function trigger: Administrator click “ Tài khoản ” on sidebar choose tab “ Khách hàng ”.
- Function description:
  - Actors: Administrator, Manager.
  - Purpose: Users can view customers list in the system.
- Screen layout:

Tên	Email	Số điện thoại	Ngày tạo	Tình trạng
Tạo tạo	taotao123@gmail.com	0978923473	28-11-2024	<span style="color: green;">Đang hoạt động</span>
Trần Anh Lâm	Xyz@gmail.com	0798645213	24-11-2024	<span style="color: red;">Dừng hoạt động</span>
Hoàng Việt Nam	nguyencanqn123@gmail.com	0775030435	23-11-2024	<span style="color: green;">Đang hoạt động</span>
Trần Anh Tuấn	abc@gmail.com	0798333342	21-11-2024	<span style="color: red;">Dừng hoạt động</span>
Nguyễn Minh Hoàng	nguyencanqn@gmail.com	0976564739	19-11-2024	<span style="color: green;">Đang hoạt động</span>

Figure 22. Customer Management screen

- Function Details:

- Pre-condition:
  - User is successfully logs into the system with administrator account.
  - User has permissions to access the system.
  - User click “ Tài khoản ” section
  - User is in “ Khách hàng ” tab
- Post condition:
  - Success: When it is created successfully, it will show the list.
- Data
  - No : number
  - Name : text
  - Email : text
  - Phone : text
  - Date Create : text
  - Status: text
- Business rule: N/A

### 3.2.2.3. View Staff Detail

- Function trigger: Administrator click into syllable “ ” to view information’s staff.
- Function description:
  - Actors: Administrator, Manager.
  - Purpose: Users can view information’s staff in the system.
- Screen layout:

The screenshot displays the 'THÔNG TIN NHÂN VIÊN' (Staff Information) screen. At the top left is a circular profile picture of a person sitting on a dock by a lake. Below it, the status 'Đang hoạt động' (Active) is shown. The right side contains several input fields for staff details:

- Họ và tên: Hoàng Minh
- Số điện thoại: 0909601346
- Email: hoangminhng@privaterelay.appleid.com
- Tài khoản: nguyencangqn123
- Vai trò: Quản lý
- Ngày sinh: 01-01-2001
- Ngày bắt đầu: 14-11-2024
- Giới tính: Nữ
- Ngày hết hạn hợp đồng: 29-11-2025

At the bottom right are two buttons: 'Cập nhật thông tin' (Update information) and 'Đóng hoạt động' (Mark as inactive).

Figure 23. Staff Detail screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system with an administrator account.
    - User has permissions to access the system.
    - User is in “Tài khoản” screen and in tab “Nhân viên”.
  - Post condition:
    - Success: It will show the page with the information of the user.
    - Success : It will show the page when the account status is changed successfully.
  - Data:
    - Name: text
    - Phone: text
    - Avatar: image
    - Email: text
    - Username: text
    - Position : text
    - Birth : text
    - Date create : text
    - Date expire : text
    - Gender: text
    - Status : text
  - Business rules: N/A.

#### 3.2.2.4. View Customer Detail

- Function trigger: Administrator click into syllable “” to view customer information.
- Function description:
  - Actors: Administrator, Manager.
  - Purpose: Users can view information's customer in the system.
- Screen layout:

The screenshot shows the 'THÔNG TIN KHÁCH HÀNG' (Customer Information) page. At the top left is the MMRMS logo and navigation links: Trang chủ, Tài khoản, and Nhật ký. The main content area has tabs: Thông tin cá nhân and Thông tin business. It displays personal information like Name (Trịnh Trần Tuấn Phương), Email (nguyen123@gmail.com), and Gender (Female). It also shows business information like Company (Hàng Bách Kim) and Status (Đang hoạt động). Below this is a section titled 'Lịch sử thanh toán' (Transaction History) with a table of transactions:

Mã hóa đơn	Tên người giao dịch	Loại hóa đơn	Tổng tiền	Ngày thanh toán	Trạng thái
INV20241128N0005	Trịnh Trần Tuấn Phương	Tiền sửa máy	411.000 VNĐ	28-11-2024 17:58:24	Có thanh toán
INV20241128N0004	Trịnh Trần Tuấn Phương	Tiền thuê máy	110.236.350 VNĐ	28-11-2024 16:26:50	Có thanh toán
INV20241127N0003	Trịnh Trần Tuấn Phương	Tiền thuê máy	53.900.000 VNĐ	Chưa thanh toán	Đang chờ

At the bottom left are 'Cài đặt' and 'Thoát' buttons. A blue 'Đóng hoạt động' button is located at the bottom right.

Figure 24. Customer Detail screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system with an administrator account.
    - User has permissions to access the system.
    - User is in “Tài khoản” screen and in tab “Khách hàng”.
  - Post condition:
    - Success: It will show the page with the information of the user.
    - Success : It will show the page when the account status is changed successfully.
  - Data:
    - Tab “Thông tin cá nhân”:
      - Name: text
      - Phone: text
      - Avatar: image
      - Email: text
      - Date create : text
      - Gender: text
      - Status : text
    - Tab “Thông tin business”:
      - Company: text
      - Tax number: text
      - Position: text
      - Address: text
  - Business rules: BR-08.

### 3.2.2.5. Update Status Staff Account

- Function trigger: Administrator clicks button “Dừng hoạt động” hoặc “Tái hoạt động” to change status staff account.
- Function description:
  - Actors: Administrator.
  - Purpose: Users want to change the staff account status.

- Screen layout:

The screenshot shows the 'THÔNG TIN NHÂN VIÊN' (Staff Information) screen in the MMRMS application. The main form includes fields for Name (Họ và tên), Phone Number (Số điện thoại), Email (Email), Username (Tài khoản), Date of Birth (Ngày sinh), and Gender (Giới tính). A profile picture placeholder is shown with the text 'Đang hoạt động' (Active). A modal dialog box is centered, asking for confirmation to deactivate the user. The modal text reads: 'Bạn có chắc chắn muốn dừng hoạt động người dùng này?' (Are you sure you want to deactivate this user?). It also states: 'Việc này sẽ khiến cho người dùng này không thể đăng nhập vào hệ thống.' (This will prevent the user from logging into the system.). There are 'Hủy' (Cancel) and 'Đừng hoạt động' (Deactivate) buttons. At the bottom of the screen, there are 'Cập nhật thông tin' (Update information) and 'Đóng hoạt động' (Deactivate) buttons.

Figure 25. Update Status Staff screen

- Function Detail:

- Pre-condition:
  - User is successfully logs into the system with an administrator account.
  - User has permissions to access the system.
  - User is in the staff account detail screen.
- Post condition:
  - Success: It will show success toast when status is changed.
- Business rules: BR-09.

### 3.2.2.6. Update Status Customer Account

- Function trigger: Administrator clicks button “Đừng hoạt động” hoặc “Tái hoạt động” to change status customer account.
- Function description:
  - Actors: Administrator.
  - Purpose: Users want to change the customer account status.
- Screen layout:

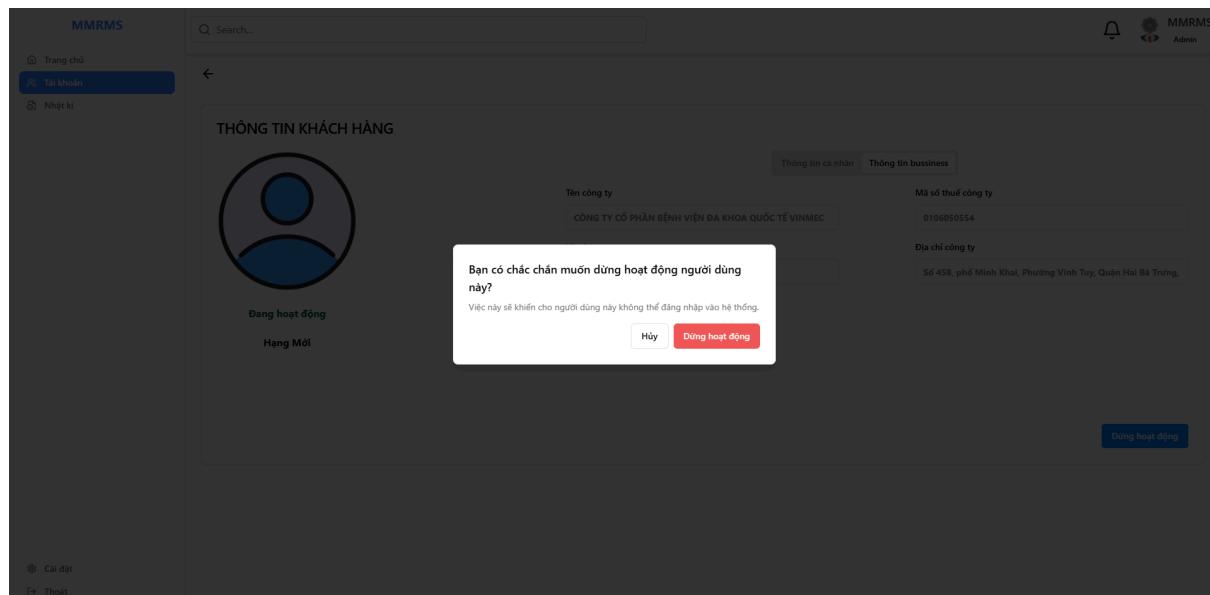


Figure 26. Update Status Customer screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system with an administrator account.
    - User has permissions to access the system.
    - User is in the customer account detail screen.
  - Post condition:
    - Success: It will show success toast when status is changed.
  - Business rules: BR-09.

### 3.2.2.7. Create Staff Account

- Function trigger: Administrator click on “Thêm mới nhân viên” and chooses tab “Biểu mẫu nhân viên”.
- Function description:
  - Actors: Administrator.
  - Purpose: Users want to add more staff for the system.
- Screen layout:

Figure 27. Create New Staff screen

- Function Details:
  - Pre-condition:
    - User is successfully logs into the system with an administrator account.
    - User has permissions to access the system.
    - User is in “Tài khoản” screen.
  - Post condition:
    - Success: When it success create it will show a toast “Tạo tài khoản thành công”.
    - Fail : Creation fails when the server crashes and will show error toast.
    - Fail : Create failure when there is a missing field.
  - Data:
    - Name: text
    - Phone: text
    - Username: text
    - Email: text
    - Role : text
    - Gender: text
    - Birth: text
    - DateExpired : text
  - Business rules: BR-03, BR-10.

### 3.2.3 Content Management:

#### 3.2.3.1 View Content List (Management Role)

- Function trigger: Staff clicks “ “Nội dung” on sidebar choose tab “Tin tức”.
- Function description:
  - Actors: Web Staff.
  - Purpose: Users can view the contents list in the system.
- Screen layout:

The screenshot shows the 'Content Management' screen of the MMRMS application. On the left, a sidebar menu includes 'Máy', 'Thành phần máy móc', 'Phân loại máy', 'Hang mục sửa chữa', 'Nội dung' (which is selected and highlighted in blue), 'Điều khoản', and 'Dịch vụ'. The main content area has a header with a search bar and a user profile for 'Nguyen Van Hoang Minh'. Below the header, tabs for 'Tin Tức' (selected) and 'Tạo Mới' are visible, along with buttons for 'Đang hiện' (green) and 'Đang ẩn' (red). A table titled 'DANH SÁCH CÁC TIN TỨC HIỆN ĐANG CÓ TRÊN TRANG WEB' lists three news items with thumbnails, titles, and dates. At the bottom right, navigation buttons for 'Previous', 'Next', and page number '1' are present.

DANH SÁCH CÁC TIN TỨC HIỆN ĐANG CÓ TRÊN TRANG WEB		
	13-11-2024 Đào tạo nhân lực ngành Thiết kế cơ khí và kiểu dáng công nghiệp tại Trường... Năm học 2024 - 2025, Đại học Công nghiệp Hà Nội (Hanoi University of Technology) tiếp tục tuyển sinh hệ đại học chính quy ngành Thiết kế cơ khí và kiểu dáng công...	
	Chuyển động Cơ khíWednesday 02/10/2024 00:10 Tao đà cho công... Với chủ đề “Tạo đà vươn xa”, triển lãm quốc tế lần thứ 20 về công nghiệp ô tô, xe máy, xe điện và công nghiệp hỗ trợ (Autotech & Accessorie...	
	Doanh nghiệpThursday 24/10/2024 00:10 VinFast vươn lên dẫn đầu thị... VinFast công bố đã bán được hơn 9.300 xe cho khách hàng trong tháng 9, cao gần gấp rưỡi so với tháng xe xếp thứ hai và vươn lên thành vị tr...	

Figure 28. Contents Management screen

- Function Details:
  - Pre-condition:
    - User is successfully logs into the system website staff account.

- User has permissions to access the system.
- Post condition:
  - Success: When the user clicks “Nội dung” in the sidebar, it will show the list.
  - Fail : Fail when the connection to the server is interrupted.
- Data:
  - Title : text
  - Summary : text
  - Image Content : text
  - Date Create : text
  - Status: text
- Business rule: N/A

### 3.2.3.2. View Content Detail

- Function trigger: Staff clicks into syllable “” to view information’s content.
- Function description:
  - Actors: Web Staff.
  - Purpose: Users can view information’s content in the system.
- Screen layout:

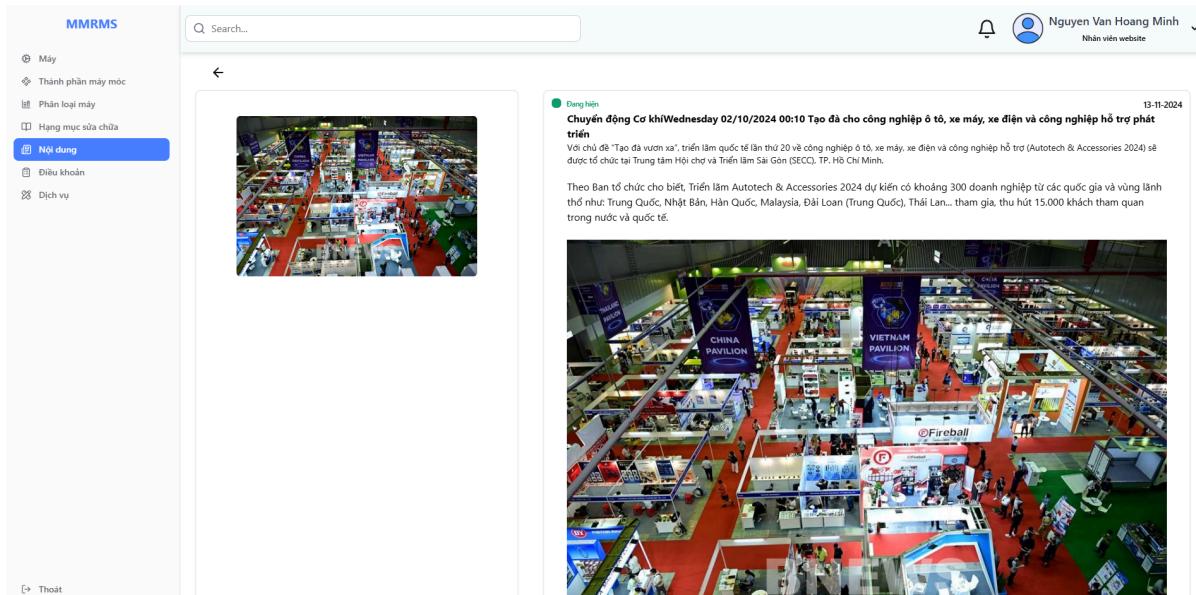


Figure 29. Content Detail screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system website staff account.
    - User has permissions to access the system.
    - User is in “Nội dung” screen.
  - Post condition:
    - Success: It will show the page with the information of the user.
    - Success : It will show the page when content status changes successfully.
    - Success : It will show the page when the content updates successfully.
  - Data:
    - Title : text
    - Summary: text
    - Image content : image

- Date create : text
- Content : text
- Status : text
- Business rules: N/A.

### 3.2.3.3. Update Status Content

- Function trigger: Staff clicks button “Ẩn nội dung” hoặc “Mở hiện nội dung” to change status content.
- Function description:
  - Actors: Web Staff.
  - Purpose: Users want to change status content.
- Screen layout:

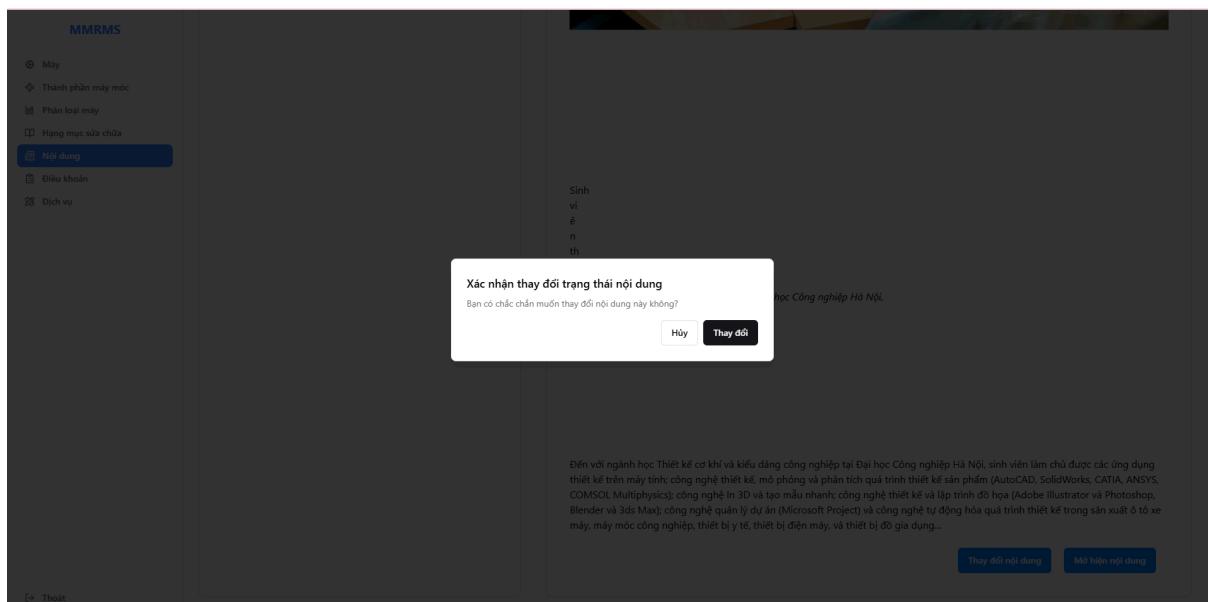


Figure 30. Update Status Content screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system website staff account.
    - User has permissions to access the system.
    - User is in the content detail screen.
  - Post condition:
    - Success: It will show success toast when status changes.
  - Business rules: BR-09.

### 3.2.3.4. Update Information Content

- Function trigger: Administrator clicks button “Thay đổi nội dung” to change information content.
- Function description:
  - Actors: Web Staff.
  - Purpose: Users want to change information content.
- Screen layout:

MMRMS

- Máy
- Thành phần máy móc
- Phân loại máy
- Hạng mục sửa chữa

Nội dung

Điều khoản

Dịch vụ



Dang ãn

Tiêu đề \*

Dào tạo nhân lực ngành Thiết kế cơ khí và kiểu dáng công nghiệp tại Trường Cơ khí - Ô tô, Hà Nội

Tóm tắt \*

Năm học 2024 - 2025, Đại học Công nghiệp Hà Nội (HaUI) tiếp tục tuyển sinh hệ đại học chính quy ngành Thiết kế cơ khí và kiểu dáng công nghiệp.

Nội dung \*

H1 H2 Sans Serif Normal B I U S " E E % T

Nhu cầu sử dụng lao động liên quan đến lĩnh vực Thiết kế cơ khí và kiểu dáng công nghiệp trong các doanh nghiệp hiện tại và tương lai là rất lớn. Đến đầu xuân năm học 2024 - 2025, Đại học Công nghiệp Hà Nội (HaUI) tiếp tục tuyển sinh hệ đại học chính quy ngành Thiết kế cơ khí và kiểu dáng công nghiệp.

Lĩnh vực cơ khí là trung cốt sự phát triển của một đất nước, là nền tảng và động lực để phát triển các ngành công nghiệp khác. Thiết kế sản phẩm cơ khí được nhận định là một trong những ngành nghề xương sống, có hội phát triển tốt trong thời đại 4.0 đặc biệt khi ứng dụng các công nghệ tiên tiến trên quả trình chế biến và chế tạo sản phẩm. Kỹ năng cao demand về năng lực và kỹ năng trong việc ứng dụng trong và ngoài nước. Cuộc cách mạng công nghiệp lần thứ tư đang diễn ra, mang tính số hóa, tự động hóa, kết nối và cải thiện chất lượng sản phẩm và tăng khả năng ứng dụng và phát triển sản phẩm. Các sản phẩm cơ khí được thiết kế từ ưu và khuyết điểm, tối ưu hóa và cải thiện chất lượng sản phẩm. Khi cần và vòng đời sản phẩm.

Kiểu dáng là một thuộc tính của sản phẩm, kiểu dáng công nghiệp quyết định mạo, phong cách sản xuất, linh hoạt và tính thẩm mỹ của sản phẩm. Kiểu dáng công nghiệp hiện nay đã phát triển và thành một ngành nghiên cứu độc lập, có vai trò ngày càng quan trọng và mang lại giá trị cộng đồng rất cao cho mỗi sản phẩm. Thiết kế sản phẩm cơ khí là thiết kế kiểu dáng và kết cấu của sản phẩm, khi mà người tiêu dùng luôn coi hình dáng, tính mỹ thuật của sản phẩm

Hoàn tất

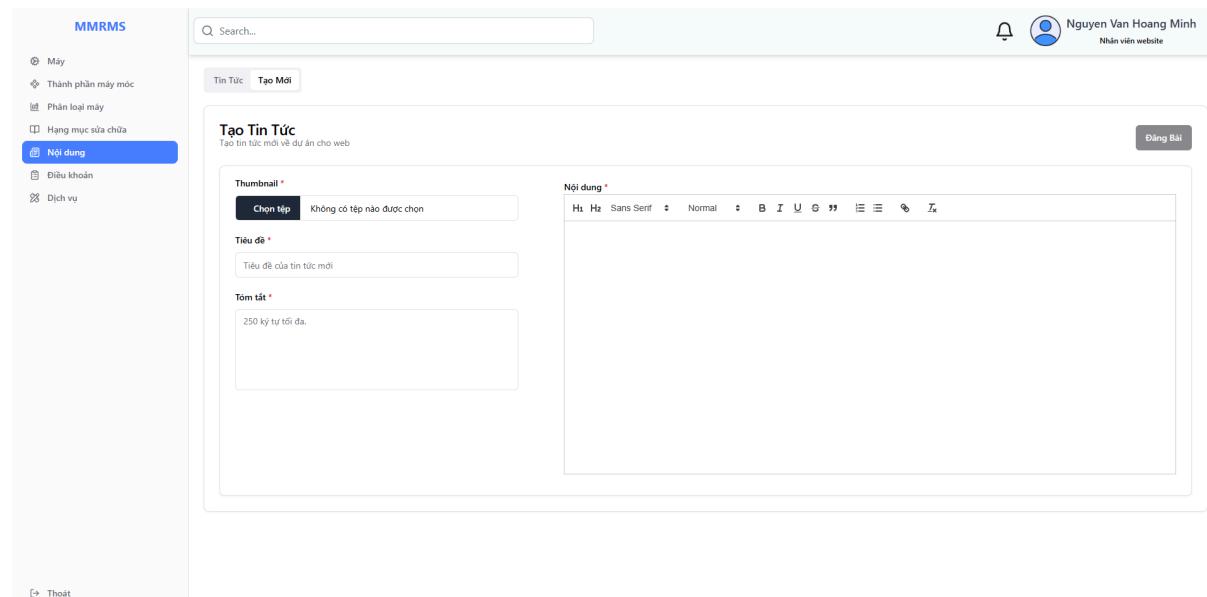
Thay đổi nội dung

*Figure 31. Update Information Content screen*

- Function Detail:
    - Pre-condition:
      - User is successfully logs into the system website staff account.
      - User has permissions to access the system.
      - User is in the content detail screen.
    - Post condition:
      - Success : It will show the success toast when content updates successfully.
      - Fail : Create failure when there is a missing field.
    - Data:
      - Title : text
      - Summary: text
      - Content : text
    - Business rules: BR-03.

### 3.2.3.5. Create New Content

- Function trigger: Administrator click “Nội dung” on sidebar choose tab “Tạo mới”.
  - Function description:
    - Actors: Web Staff.
    - Purpose: Users can create new content in the system.
  - Screen layout:



*Figure 32. Create New Content screen*

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system website staff account.
    - User has permissions to access the system.
    - User is in “Nội dung” screen.
  - Post condition:
    - Success: It will show success toast “Tạo tin tức thành công” when new content is created.
    - Fail : Create failure when there is a missing field.
  - Data :
    - Title : text
    - Image content : text
    - Summary: text
    - Content : text
  - Business rules: BR-03.

### 3.2.3.6 Delete Content

- Function trigger: Administrator click “” in which content the user wants to delete.
- Function description:
  - Actors: Web Staff.
  - Purpose: Users can delete content in the system.
- Screen layout:

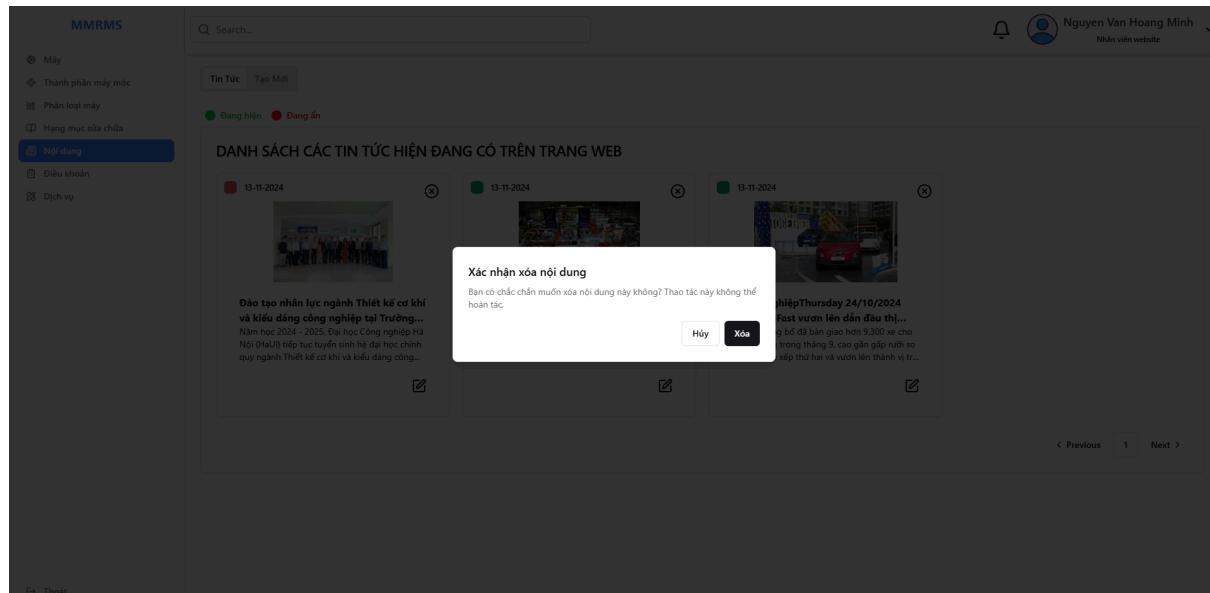


Figure 33. Delete Content screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system website staff account.
    - User has permissions to access the system.
    - User is in “Nội dung” screen.
  - Post condition:
    - Success: It will shows success toast “Xoá tin tức thành công” when delete content.
  - Business rules: BR-09.

### 3.2.3.7. View Content List (Customer Role)

- Function trigger: Customer clicks “Tin tức” on headerbar.
- Function description:
  - Actors: Customer.
  - Purpose: Users can view the contents list in the system.
- Screen layout:

The screenshot shows a list of news items on a web page. At the top, there's a header with links for 'Trang chủ', 'Sản phẩm', 'Tin tức' (which is highlighted in blue), 'Quyền lợi', and 'Điều khoản'. Below the header, there's a search bar with a 'Xóa Filter' button. The main content area displays four news items in a grid format. Each item has a thumbnail image, a title, a brief description, a date, and a 'Xem chi tiết' (View details) button.

Tin tức	Mô tả	Ngày đăng	Chi tiết
	Phát triển ngành cơ khí gắn với năng cao tần số địa hóa, tích hợp công nghệ cao	30-09-2024	Xem chi tiết
	Cải tiến dịch vụ bảo trì máy móc cơ giới	01-10-2024	Xem chi tiết
	Ưu đãi đặc biệt khi thuê máy móc	02-10-2024	Xem chi tiết
	Khuyến mãi bảo dưỡng máy miễn phí	03-10-2024	Xem chi tiết

Figure 34. View Content List Web screen

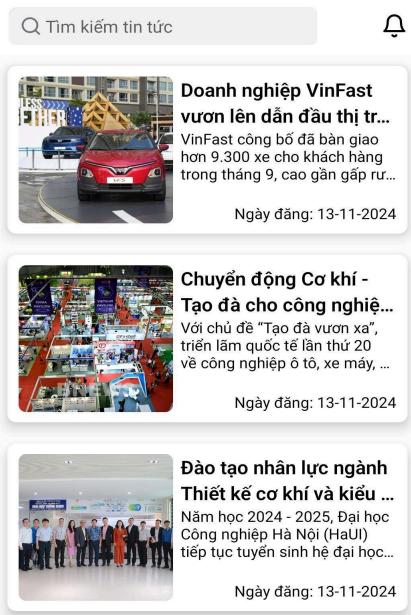


Figure 35. View Content List Mobile screen

- Function Detail:
  - Pre-condition:
    - Guests successfully access the website.
  - Post condition:
    - Success: It will show the page when the user clicks the “Tin tức” section.
  - Data :
    - Title : text
    - Image content : text
    - Summary: text
    - Date create : text
  - Business rules: N/A.

### 3.2.3.8. View Detail Content (Customer Role)

- Function trigger: Customers click the “Xem chi tiết” button to view content detail.
- Function description:
  - Actors: Customer, Guest.
  - Purpose: Users can view information's content in the system.
- Screen layout:

Trang chủ > Tin tức

**Phát triển ngành công nghiệp năng lượng tái tạo và công nghệ cao**

Với khoảng 30.000 doanh nghiệp có kinh doanh, doanh thu toàn ngành đạt hơn 1,7 triệu tỷ đồng và tạo việc làm cho trên 1,2 triệu lao động, ngành công nghiệp năng lượng tái tạo và công nghệ cao đã bước đầu hình thành được một số doanh nghiệp có tiềm năng phát triển ngang tầm khu vực.

Cùng với đó, nhiều doanh nghiệp đã chế tạo được thiết bị cơ khí thủy công của các nhà máy thủy điện lớn, nhỏ. Nhiều thiết bị cơ khí thủy công có tổng trọng lượng lên tới hàng chục ngàn tấn đều được các doanh nghiệp trong nước làm chủ công nghệ, chất lượng đáp ứng yêu cầu thiết kế. Việt Nam cũng đã hình thành ngành công nghiệp sản xuất lắp ráp ô tô với khoảng gần 40 doanh nghiệp đạt tổng công suất lắp ráp thiết kế hơn 680.000 xe/năm; sản xuất xe gắn máy với những thiết kế vượt bậc, đáp ứng đủ nhu cầu trong nước với tỷ lệ nội địa hóa các loại xe đạt khoảng 85 - 95%, có nhiều sản phẩm, linh kiện phụ tùng xuất khẩu ổn định. Bên cạnh đó, thiết kế, chế tạo các loại máy biến áp phục vụ cho nhà máy điện, hệ thống truyền tải sản xuất được các loại cáp điện, cáp quang phục vụ nhu cầu trong nước và xuất khẩu...

\*Đến thăm VinFast tại Khu công nghiệp số 1 Bàu Bàng, huyện Bàu Bàng, tỉnh Bình Dương, bạn sẽ thấy một khung cảnh như

Figure 36. View Content Detail Web screen



### Doanh nghiệp VinFast vươn lên dẫn đầu thị trường ô tô điện Việt Nam

Ngày đăng: 13-11-2024

VinFast công bố đã bàn giao hơn 9.300 xe cho khách hàng trong tháng 9, cao gấp rưỡi so với hàng xe xếp thứ hai và vươn lên thành vị trí số 1 Việt Nam. Đánh dấu bước tiến mới của công nghiệp ô tô Việt Nam.

VinFast là công ty thành viên của Tập đoàn Vingroup, được thành lập vào năm 2017. Với tầm nhìn trở thành thương hiệu xe điện thông minh thúc đẩy mạnh mẽ cuộc cách mạng xe điện toàn cầu, VinFast sở hữu tổ hợp nhà máy sản xuất ô tô hiện đại, có quy mô hàng đầu khu vực đặt tại Hải Phòng, Việt Nam với mức độ tự động hóa lên đến 90%.

Cùng với quy trình sản xuất hiện đại và đội ngũ

Figure 37. View Content Detail Mobile screen

- Function Detail:
  - Pre-condition:
    - Guests successfully access the website.
  - Post condition:
    - Success : It will show the page when click “Xem chi tiết”
  - Data:
    - Title : text
    - Summary: text

- Image content : image
- Date create : text
- Content : text
- Business rules: N/A.

### 3.2.4 Promotion Management:

#### 3.2.4.1. View Member Ranking List

- Function trigger: Manager click “Gói thành viên” on sidebar choose tab “Gói thành viên”.
- Function description:
  - Actors: Manager.
  - Purpose: Users can view the member ranking list in the system.
- Screen layout:

The screenshot shows the 'Member Ranking Management' screen. The sidebar on the left has a blue-highlighted 'Gói thành viên' section. The main content area has a header 'DANH SÁCH CÁC GÓI THÀNH VIÊN TRÊN TRANG WEB'. Below it are six boxes representing different ranking levels:

- Hạng Mới**: Lượng tiền tích điểm gói : 0 VND. Description: Thành viên mới đăng ký thành công chưa có ưu đãi, có thể nâng hạng bằng cách tích lũy chi tiêu.
- Hạng Đồng**: Lượng tiền tích điểm gói : 1.000.000 VND. Description: Thành viên hạng Đồng được giảm 5% trên mỗi đơn hàng.
- Hạng Bạc**: Lượng tiền tích điểm gói : 5.000.000 VND. Description: Thành viên hạng Bạc được giảm 10% trên mỗi đơn hàng và tham gia chương trình ưu đãi đặc biệt.
- Hạng Vàng**: Lượng tiền tích điểm gói : 10.000.000 VND. Description: Thành viên hạng Vàng được giảm 15% trên mỗi đơn hàng, ưu tiên trong dịch vụ chăm sóc khách hàng.
- Hạng Kim Cương**: Lượng tiền tích điểm gói : 20.000.000 VND. Description: Thành viên hạng Kim Cương được giảm 20% trên mỗi đơn hàng, nhận nhiều ưu đãi độc quyền.
- Hạng Bạch Kim**: Lượng tiền tích điểm gói : 50.000.000 VND. Description: Thành viên hạng Bạch Kim được giảm 25% trên mỗi đơn hàng, hưởng các dịch vụ VIP và quà tặng định kỳ.

Figure 38. Member Ranking Management screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system manager account.
    - User has permissions to access the system.
  - Post condition:
    - Success: It will shows page when user click “Gói thành viên” section and chooses “Gói thành viên” tab.
  - Data :
    - Title : text
    - Money accumulation: text
    - Content : text
  - Business rules: N/A.

#### 3.2.4.2. Delete Member Ranking

- Function trigger: Manager click “Xoá” in which member ranking package user wants to delete.
- Function description:
  - Actors: Manager.
  - Purpose: Users can delete member ranking packages in the system.

- Screen layout:

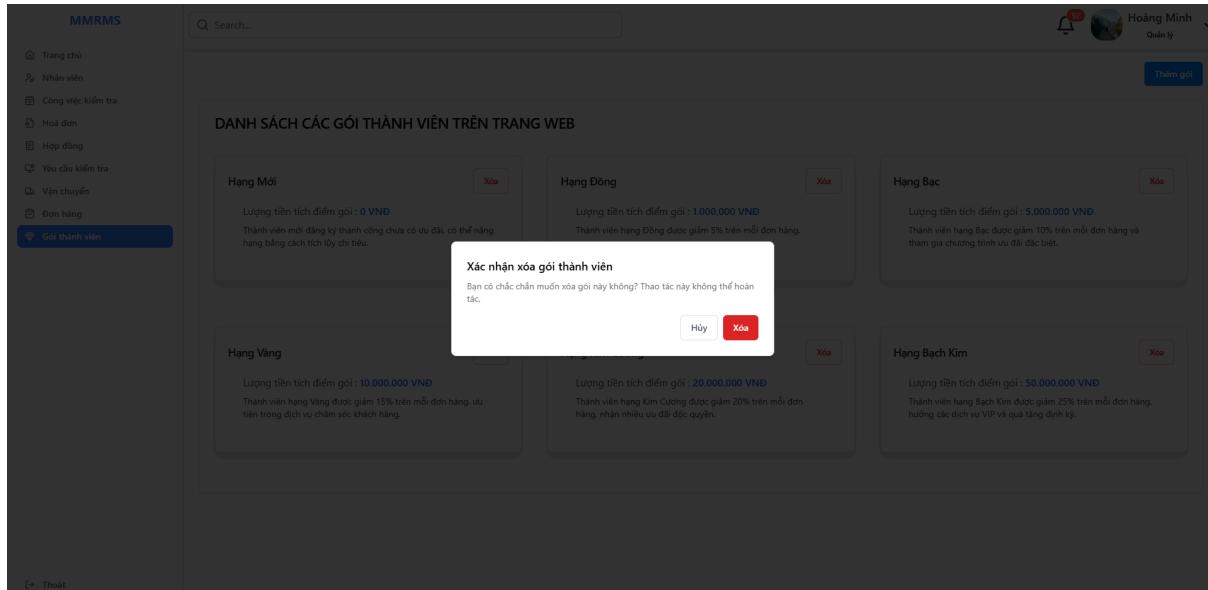


Figure 39. Delete Member Ranking screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system manager account.
    - User has permissions to access the system.
    - User is in “Gói thành viên” screen.
  - Post condition:
    - Success: It will shows success toast “Xoá gói thành viên thành công” when delete member ranking package.
  - Business rules: BR-09.

### 3.2.4.3. Create Member Ranking Package

- Function trigger: Manager click “Thêm gói” on sidebar choose tab “Gói thành viên”.
- Function description:
  - Actors: Manager.
  - Purpose: Users can create a new member ranking package in the system.
- Screen layout:

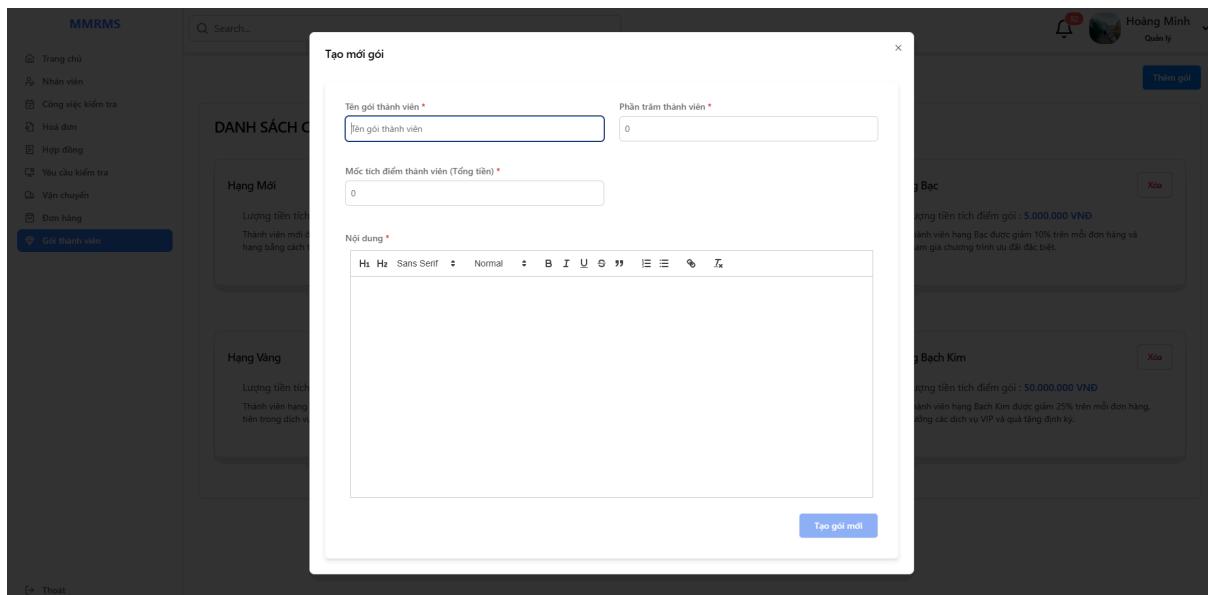
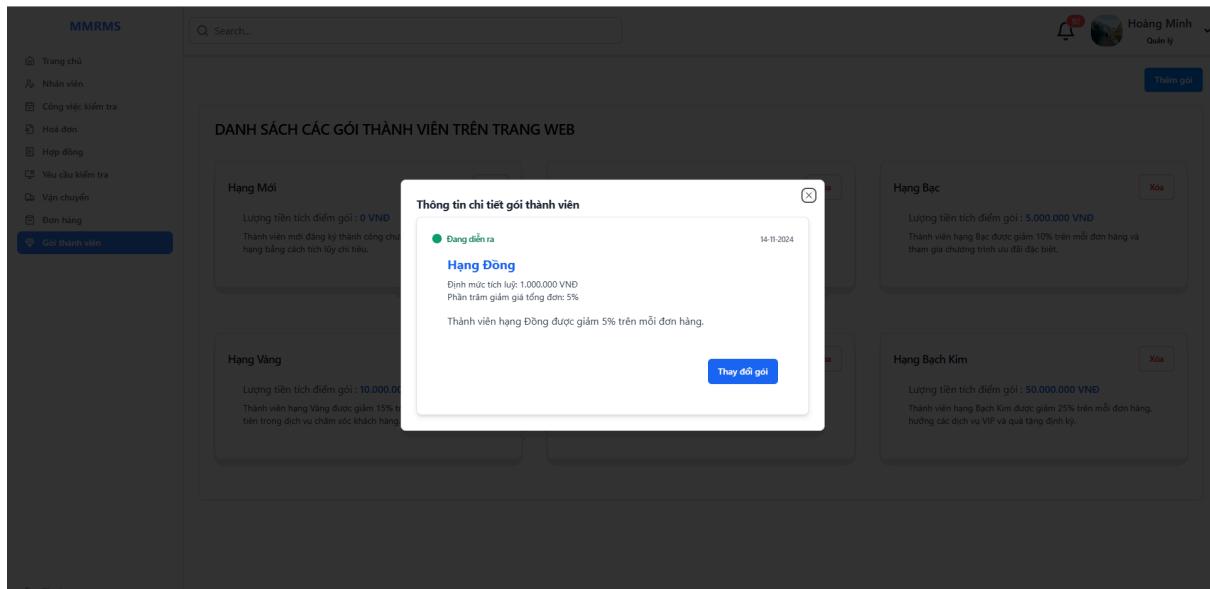


Figure 40. Create Member Ranking screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system manager account.
    - User has permissions to access the system.
    - User is in “Gói thành viên” screen.
  - Post condition:
    - Success: It will shows success toast “Tạo gói thành viên thành công” when create member ranking package.
  - Data:
    - Title : text
    - Percentage decrease : number
    - Cumulative money : text
    - Content : text
  - Business rules: BR-03.

#### 3.2.4.4. View Member Ranking Package Detail

- Function trigger: Manager chooses a member ranking package and clicks to view information's member ranking.
- Function description:
  - Actors: Manager.
  - Purpose: Users can view information's member ranking package in the system.
- Screen layout:



*Figure 41. View Member Ranking Detail screen*

- **Function Detail:**

- **Pre-condition:**
  - User is successfully logs into the system manager account.
  - User has permissions to access the system.
  - User is in “Gói thành viên” screen.
- **Post condition:**
  - Success : It will show the dialog when click on a member ranking package.
- **Data:**
  - Title : text
  - Status : text
  - Date create : text
  - Cumulative money : text
  - Percentage decrease : number
  - Content : text
- **Business rules:** N/A.

#### 3.2.4.5. Update Member Ranking Package Detail

- **Function trigger:** Administrator clicks button “Thay đổi gói” to change information member ranking package information.
- **Function description:**
  - **Actors:** Administrator.
  - **Purpose:** Users want to change the information member ranking package.
- **Screen layout:**

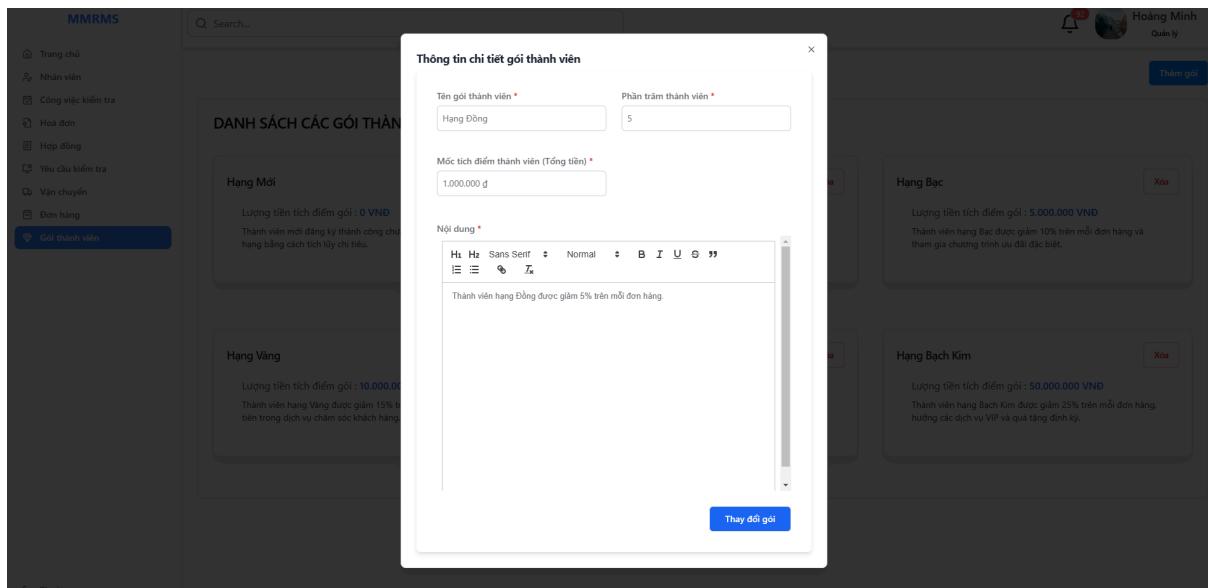


Figure 42. Update Member Ranking Detail screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system manager account.
    - User has permissions to access the system.
    - User is in “Gói thành viên” screen.
  - Post condition:
    - Success : It will show the success toast when successfully updates the information member ranking package successfully.
  - Data:
    - Title : text
    - Percentage decrease : number
    - Cumulative money : text
    - Content : text
  - Business rules: BR-03.

### 3.2.4.6. View Member Ranking List (Customer Role)

- Function trigger: Administrator clicks on the “Quyền lợi” tab to navigate to member ranking list
- Function description:
  - Actors: Guest, Customer.
  - Purpose: Users want to view member ranking.
- Screen layout:

TIÊU CHÍ	THƯỜNG	ĐỒNG	BẠC	VÀNG	KIM CƯƠNG	BẠCH KIM
Số tiền tài khoản đã chi	0 ₫	1.000.000 ₫	5.000.000 ₫	10.000.000 ₫	20.000.000 ₫	50.000.000 ₫
Giảm giá với mỗi máy trên mọi đơn hàng	0 %	5 %	10 %	15 %	20 %	25 %

Figure 43. View Member Ranking List Web screen

THÔNG TIN QUYỀN LỢI	NHẬT KÝ THÀNH VIÊN
<b>Hạng Mới</b> Số tiền chi tiêu: 0 ₫ Chi tiết: Thành viên mới đăng ký thành công chưa có ưu đãi, có thể nâng hạng bằng cách tích lũy chi tiêu.	
<b>Hạng Đồng</b> Số tiền chi tiêu: 1.000.000 ₫ Chi tiết: Thành viên hạng Đồng được giảm 5% trên mỗi đơn hàng.	
<b>Hạng Bạc</b> Số tiền chi tiêu: 5.000.000 ₫ Chi tiết: Thành viên hạng Bạc được giảm 10% trên mỗi đơn hàng và tham gia chương trình ưu đãi đặc biệt.	
<b>Hạng Vàng</b> Số tiền chi tiêu: 10.000.000 ₫ Chi tiết: Thành viên hạng Vàng được giảm 15% trên mỗi đơn hàng, ưu tiên trong dịch vụ chăm sóc khách hàng.	
<b>Hạng Kim Cương</b> Số tiền chi tiêu: 20.000.000 ₫ Chi tiết: Thành viên hạng Kim Cương được giảm 20% trên mỗi đơn hàng, nhận nhiều ưu đãi độc quyền.	

Figure 44. View Member Ranking List Mobile screen

- Function Detail:
  - Pre-condition:
    - Guests successfully access the website.
  - Post condition:
    - Success : It will show the member ranking list.
  - Data:
    - Title : text
    - Money accumulation: number

- DiscountPercentage: number
- Business rules: N/A.

### 3.2.4.7. View Customer Membership Rank Log

- Function trigger: Administrator clicks on the "Quyền lợi" tab to navigate to member ranking list and membership rank detail
- Function description:
  - Actors: Customer.
  - Purpose: Users want to view membership rank detail
- Screen layout:

**Bạn hiện tại đang**

**Hạng Bạch Kim**  
Số tiền tiêu đã vượt: 50.000.000 đ

Thời gian	Nội dung
14-11-2024, 20:09:38	Hạng thành viên đã được nâng cấp lên Hạng Mới
14-11-2024, 20:26:22	Tổng số tiền đã thanh toán là 60000000
14-11-2024, 20:26:22	Hạng thành viên đã được nâng cấp lên Hạng Bạch Kim
14-11-2024, 20:26:55	Tổng số tiền đã thanh toán là 92410000
14-11-2024, 21:13:36	Tổng số tiền đã thanh toán là 272410000

Figure 45. View Member Ranking Log Detail Web screen

**Bạn hiện tại đang**

**Hạng Bạch Kim**  
Số tiền tiêu đã vượt: 50.000.000 đ

⌚	Tổng số tiền đã thanh toán là 1.395.329.800 đ 24-11-2024, 10:03:38
⌚	Tổng số tiền đã thanh toán là 1.394.918.800 đ 21-11-2024, 13:50:17
⌚	Tổng số tiền đã thanh toán là 1.333.418.800 đ 20-11-2024, 17:16:40
⌚	Tổng số tiền đã thanh toán là 1.333.018.800 đ 20-11-2024, 15:46:01
⌚	Tổng số tiền đã thanh toán là 1.193.216.000 đ 20-11-2024, 15:45:24
⌚	Tổng số tiền đã thanh toán là 1133216000 16-11-2024, 15:14:36
⌚	Tổng số tiền đã thanh toán là 1132816000 16-11-2024, 15:14:07
⌚	Tổng số tiền đã thanh toán là 1132416000 16-11-2024, 14:19:14

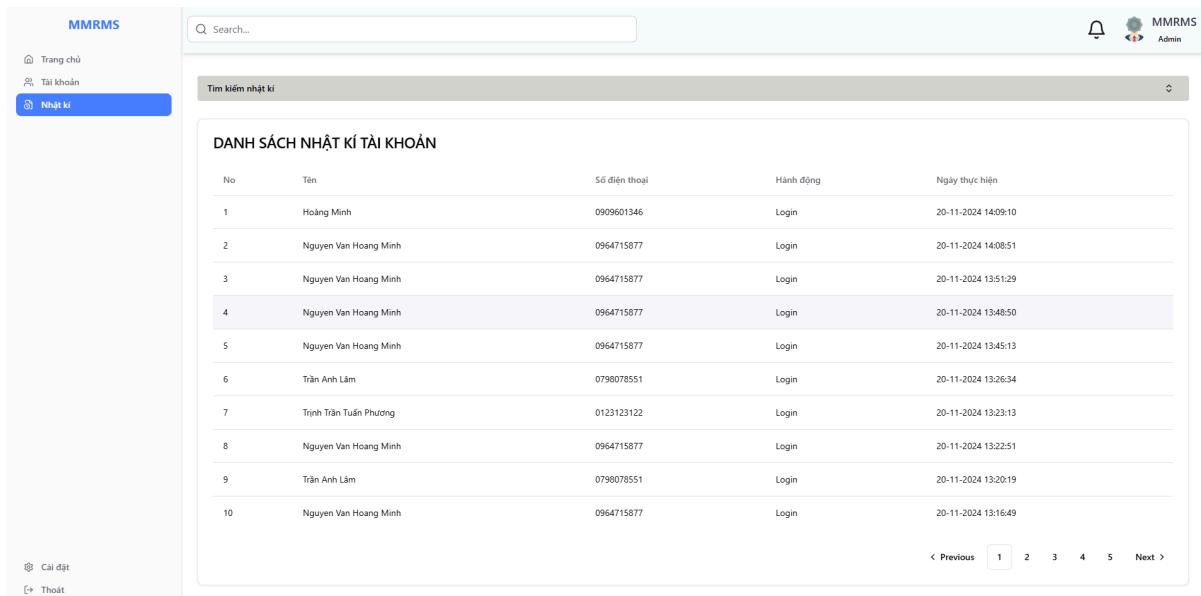
Figure 46. View Member Ranking Log in Mobile screen

- Function Detail:
  - Pre-condition:
    - User is logged into the system
  - Post condition:
    - Success : It will show the account membership ranking detail and the account's spending logs
  - Data:
    - Title : text
    - Money accumulation: number
    - DiscountPercentage: number
    - LogAction: text
    - DateLog: text
  - Business rules: N/A.

### 3.2.5 Log Management

#### 3.2.5.1. View Logs List

- Function trigger: Administrator click “Nhật kí” on the sidebar.
- Function description:
  - Actors: Administrator.
  - Purpose: Users can view logs list in the system.
- Screen layout:



The screenshot shows a web-based application interface for log management. At the top, there is a header with the MMRMS logo, a search bar, and a user profile icon labeled "Admin". Below the header, a sidebar menu includes "Trang chủ", "Tài khoản", and "Nhật kí", with "Nhật kí" being the active tab. The main content area has a title "DANH SÁCH NHẬT KÍ TÀI KHOẢN". A search bar labeled "Tim kiem nhat ki" is present. Below the title is a table with columns: "No", "Tên", "Số điện thoại", "Hành động", and "Ngày thực hiện". The table contains 10 rows of log entries. At the bottom right, there are navigation buttons for "Previous", "Next", and page numbers 1 through 5.

No	Tên	Số điện thoại	Hành động	Ngày thực hiện
1	Hoàng Minh	0909601346	Login	20-11-2024 14:09:10
2	Nguyen Van Hoang Minh	0964715877	Login	20-11-2024 14:08:51
3	Nguyen Van Hoang Minh	0964715877	Login	20-11-2024 13:51:29
4	Nguyen Van Hoang Minh	0964715877	Login	20-11-2024 13:48:50
5	Nguyen Van Hoang Minh	0964715877	Login	20-11-2024 13:45:13
6	Trần Anh Lâm	0798078551	Login	20-11-2024 13:26:34
7	Trịnh Trần Tuấn Phương	0123123122	Login	20-11-2024 13:23:13
8	Nguyen Van Hoang Minh	0964715877	Login	20-11-2024 13:22:51
9	Trần Anh Lâm	0798078551	Login	20-11-2024 13:20:19
10	Nguyen Van Hoang Minh	0964715877	Login	20-11-2024 13:16:49

Figure 47. Log Management screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system administrator account.
    - User has permissions to access the system.
  - Post condition:
    - Success: It will show the page when the user clicks the “Nhật kí” section.
  - Data :
    - No: number
    - Name : text

- Phone : text
- Date update : text
- Business rules: N/A.

### 3.2.6 Machine Management

#### 3.2.6.1. View Machine List

- Function trigger: Webstaff clicks on “Máy” on the sidebar.
- Function description:
  - Actors: Webstaff.
  - Purpose: Users can view the machine list in the system.
- Screen layout:

The screenshot shows a web-based application interface for managing machines. On the left, there is a sidebar with a blue header containing the text "Máy". Below the header, there are several menu items: Thành phần máy móc, Phân loại máy, Serial Number, Bảng giá cho thuê, Hạng mục sửa chữa, Nội dung, Điều khoản, and Dịch vụ. At the bottom of the sidebar is a "Thoát" (Logout) button. The main content area has a title "DANH SÁCH CÁC MÁY". It includes a search bar with placeholder "Tim kiem mã máy" and a "Thêm máy" (Add machine) button. Below the search bar are three buttons: "Lọc theo" (Filter), "Tình trạng" (Status), and a red "Đặt lại" (Reset) button. The main table lists seven machines with the following data:

Tên máy	Loại máy	Giá thuê	Giá máy	Số lượng	Tình trạng
Máy khoan bắn taro WDDM ZS3500D	Máy khoan	250.000 đ	250.000.000 đ	10	<span>Đang hoạt động</span>
Máy phay giường Vison Wide MS-3117	Máy phay	350.000 đ	350.000.000 đ	15	<span>Đang hoạt động</span>
Máy dập thân C đơn Chinfong CP-150	Máy dập	375.000 đ	375.000.000 đ	10	<span>Đang hoạt động</span>
Máy phay giường Vison Wide MS-3116	Máy phay	350.000 đ	350.000.000 đ	10	<span>Đang hoạt động</span>
MÁY KHOAN NGANG CNC FULL OPTION ( motor lớn, trực Z servor, khoan sâu 90mm )	Máy bão	500.000 đ	500.000.000 đ	3	<span>Tạm khóa</span>
Máy cắt ống và cắt tấm CNC Gas/Plasma	Máy cắt	100.000 đ	100.000.000 đ	12	<span>Đang hoạt động</span>
Máy xung điện EDM	Máy hàn	10.000 đ	10.000.000 đ	0	<span>Tạm khóa</span>

Figure 48. Machine Management screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system web-staff account.
    - User has permissions to access the system.
  - Post condition:
    - Success: It will show the page when the user clicks the “Máy” section on the sidebar.
  - Data :
    - No: number
    - Machine name: text
    - Machine category: text
    - Rent price : number
    - Machine price: number
    - Quantity: number
    - Status: text
  - Business rules: BR-01,

#### 3.2.6.2. View Machine Information

- Function trigger: User clicks on “PencilSquareIcon” in the machine table row.
- Function description:
  - Actors: Webstaff.
  - Purpose: Users can view machine information in the system.

- Screen layout:

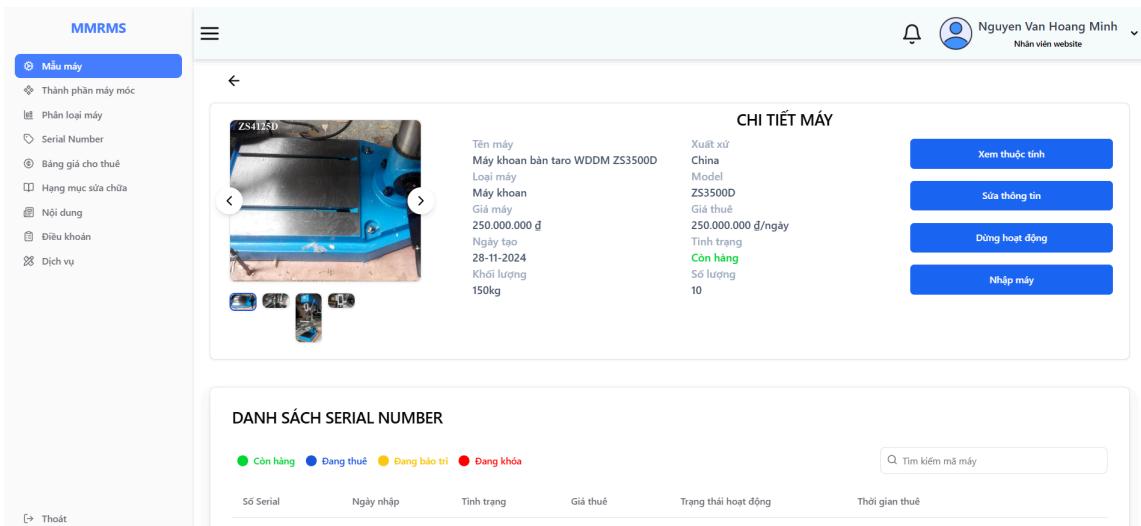


Figure 49. Machine Detail screen

- Function Detail:

- Pre-condition:
  - User is successfully logs into the system.
  - User has permissions to access the system.
- Post condition:
  - Success: The system displays detailed information about the selected machine model and its associated serial numbers on the page.
- Data :
  - Machine Information
    - Machine Name: text.
    - Category: text.
    - Model: text.
    - Origin: text.
    - Machine price: number
    - Rent price: number
    - Creation Date: date
    - Quantity: number
    - Status: text.
    - Weight: number
  - Serial number list - Displays a list of serial numbers for the individual units of this machine model. This section contains:
    - Serial Number: text.
    - Entry Date: date.
    - Status: text
    - Rent price: number
    - Operating status: text.
    - Rental period: text
- Business rules: BR-01.

### 3.2.6.3. View Machine Attribute, Component, Term

- Function trigger: User clicks on “Xem thuộc tính” button in the machine information.
- Function description:

- Actors: Webstaff.
- Purpose: Users can view machine information in the system.
- Screen layout:

The screenshot displays the 'Machine Detail' screen of the MMRMS application. On the left, a sidebar lists categories such as 'Máy móc', 'Phân loại máy', 'Serial Number', 'Bảng giá cho thuê', 'Hạng mục sửa chữa', 'Nội dung', 'Điều khoản', and 'Dịch vụ'. The main content area is divided into two main sections: 'THUỘC TÍNH MÁY' (Machine Attributes) and 'THÀNH PHẦN MÁY' (Machine Components). The 'THUỘC TÍNH MÁY' section contains tables for 'Thuộc tính' (Attributes) and 'Thông số' (Parameters), listing items like 'Khả năng khoan', 'Công suất động cơ', 'Điện áp sử dụng', 'Hành trình trục chính (đầu khoan)', and 'Số Cấp Tốc Độ'. The 'THÀNH PHẦN MÁY' section contains a table for 'Bộ phận' (Components) and 'Số lượng' (Quantity), listing items like 'Hệ thống làm mát', 'Động cơ chính', 'Bộ điều chỉnh bàn làm việc', and 'Trục chính (Spindle)'. Both sections include a 'Sửa thuộc tính' (Edit Attribute) and 'Sửa thành phần' (Edit Component) button. At the bottom, there are navigation buttons for pages 1, 2, 3, and 4.

*Figure 50. Machine Detail screen*

- Function Detail:
- Pre-condition:
  - User is successfully logs into the system.
  - User has permissions to access the system.
- Post condition:
  - Success: The system displays detailed information about attributes, components and terms of the selected machine model.
- Data :
  - Attribute list - Display a list of many attributes
    - Specification: text.
    - Value: text.
  - Component list - Displays a list of many components of this machine model. This section contains:
    - Component name: text
    - Quantity: number
  - Term list - Display a list of all term that for using machine
    - Title: text
    - Content: text
- Business rules: BR-01.

#### 3.2.6.4. Update machine information

- Function trigger:User clicks on “Sửa thông tin” button in the machine information.
- Function description:
  - Actors: Webstaff.
  - Purpose: Users want to update machine information in the system.
- Screen layout:

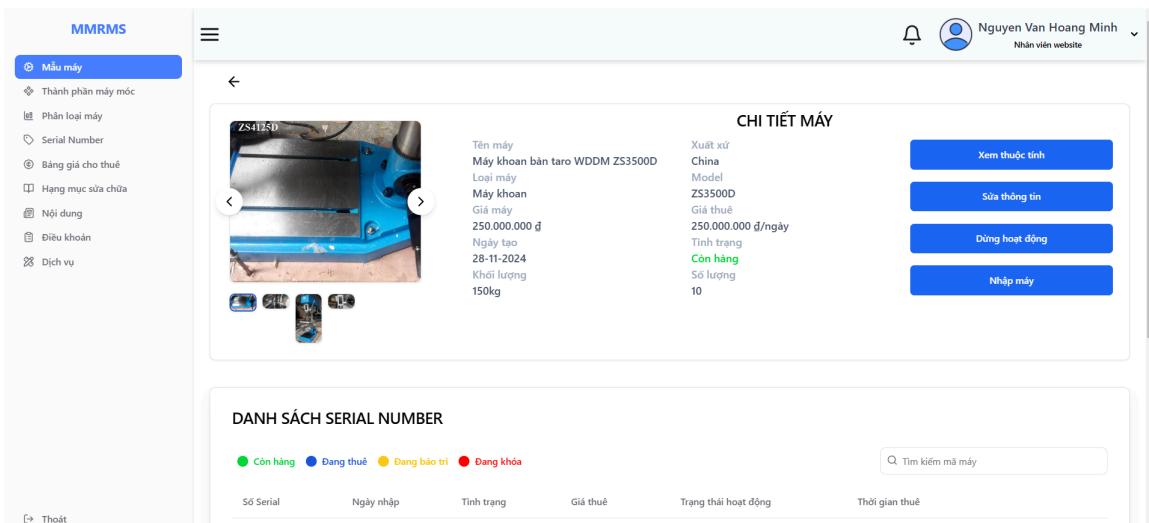


Figure 51. Machine Detail screen

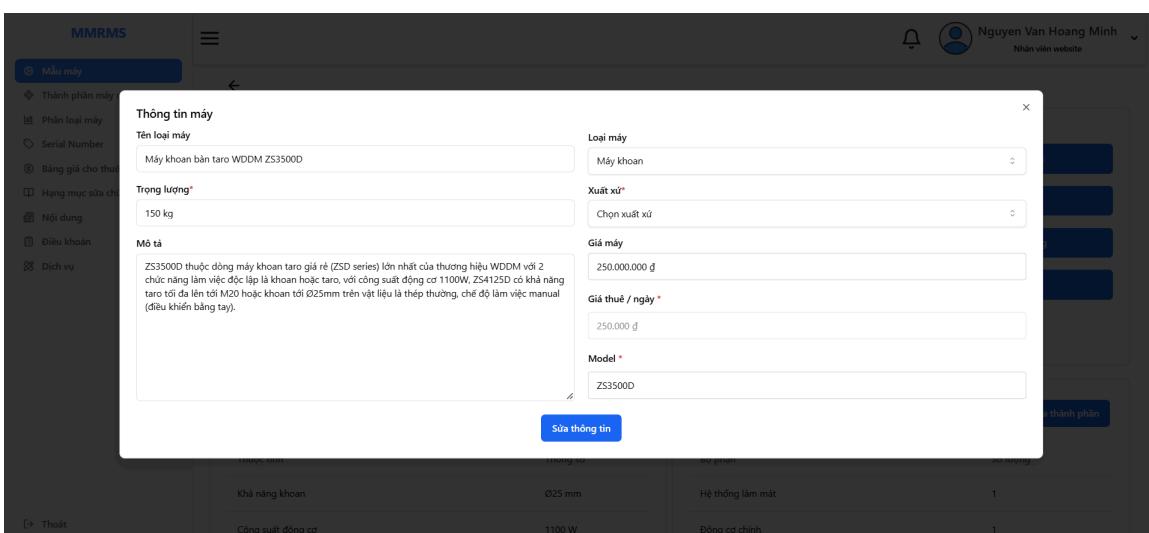


Figure 52. Update Machine Detail screen

- Function Detail:

- Pre-condition:

- User is successfully logs into the system.
    - User has permissions to access the system.
    - User is at the machine information screen.

- Post condition:

- Success: User can view the machine in detail.

- Data :

- Machine name: text
    - Machine description: text
    - Machine weight: number
    - Machine category: text
    - Origin: text
    - Machine price: number
    - Rental price per date: number
    - Model: text

- Business rules: BR-01, BR-03, BR-15, BR-16.

### 3.2.6.5. Disable/Enable Machine

- Function trigger: User clicks on “Dừng hoạt động” button in the machine information.
- Function description:
  - Actors: web-staff.
  - Purpose: Users want to disable/enable a machine in the system.
- Screen layout:

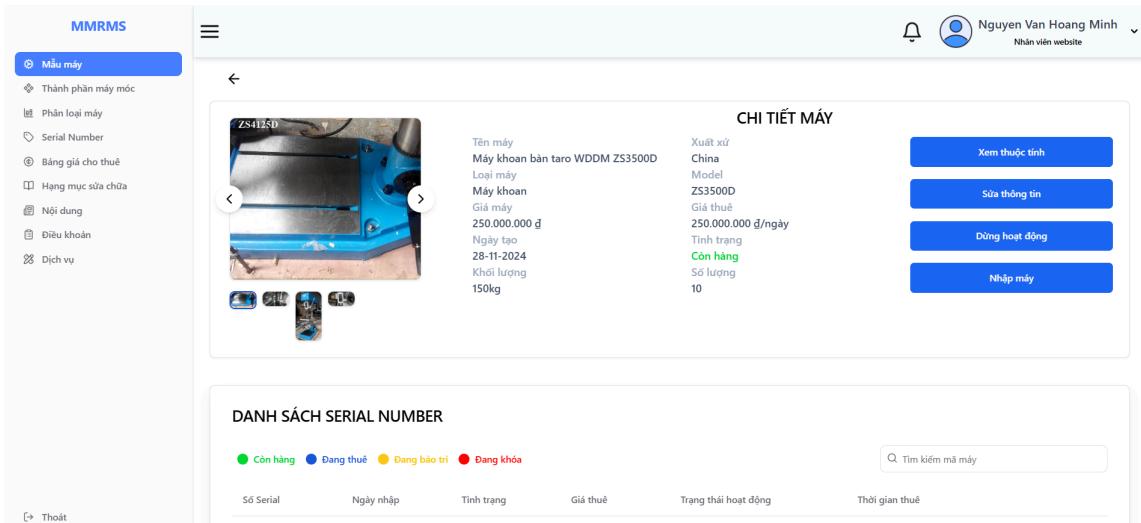


Figure 53. Machine Detail screen

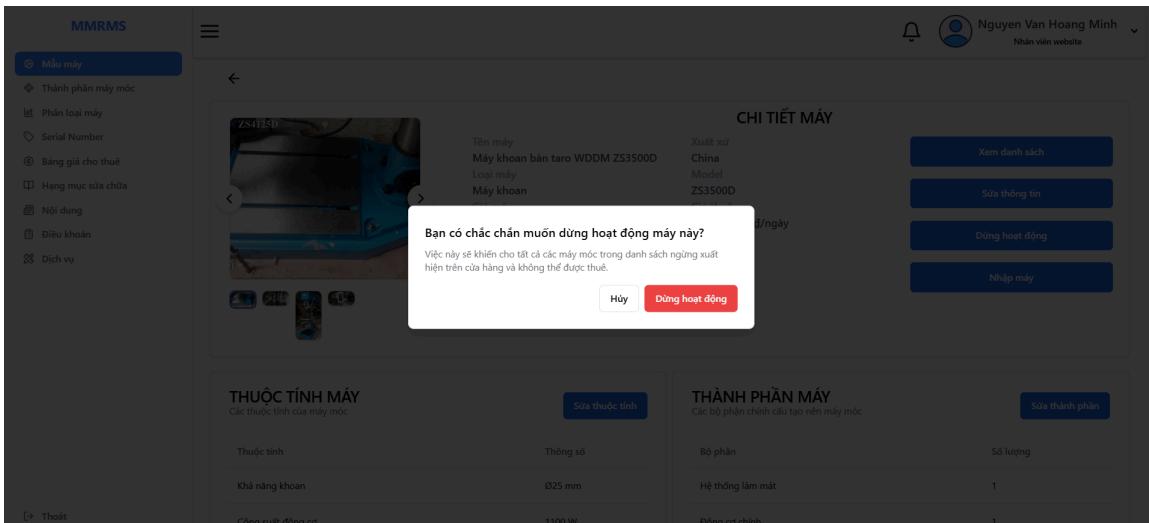


Figure 54. Update Machine Status screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system.
    - User has permissions to access the system.
    - User is at the machine information screen.
  - Post condition:
    - Success: User can view the machine in detail.
  - Business rules: N/A.

### 3.2.6.6. Create machine serial number

- Function trigger: User clicks on “Nhập máy” button in the machine information.
- Function description:
  - Actors: web-staff.
  - Purpose: User wants to add a machine serial number to the system.
- Screen layout:

Figure 55. Machine Detail screen

Figure 56. Create Serial Number Machine screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system.
    - User has permissions to access the system.
    - User is at the machine information screen.
  - Post condition:
    - Success: User can view the machine in detail with new machine serial numbers added in the table.
    - Fail: When adding an error it will show an error toast.

- Business rules: BR-01, BR-03, BR-17.

### 3.2.6.7. Create new machine

- Function trigger: User clicks on the “Thêm máy” button in the machine list screen.
- Function description:
  - Actors: web-staff.
  - Purpose: Users want to add a new machine to the system.
- Screen layout:

Figure 57. Create Machine screen

Số	Tên bộ phận	Số lượng	Giá
8	Hệ thống dẫn hướng trục Z	1	20.000.000 đ
9	Bộ làm mát	1	15.000.000 đ
10	Bộ thay dao tự động	1	80.000.000 đ
11	Tủ điện điều khiển	1	50.000.000 đ
Tổng cộng:			495.000.000 đ

Figure 58. Create Machine screen

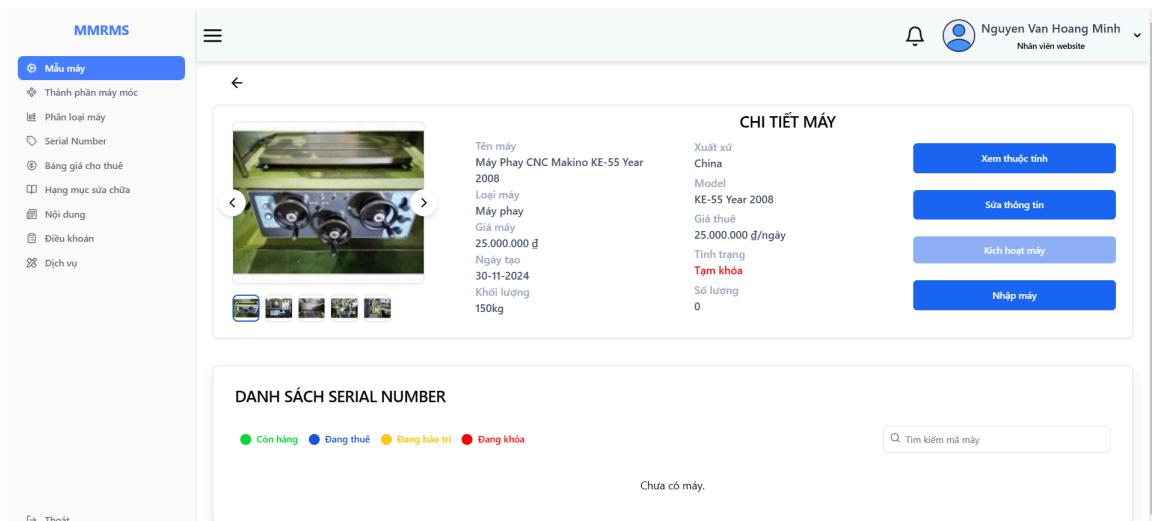


Figure 59. Machine information screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system.
    - User has permissions to access the system.
  - Post condition:
    - Success: User can view the new machine in detail in machine information screen.
    - Fail: When adding an error it will show an error toast.
  - Business rules: BR-01, BR-03, BR-15, BR-16, BR-18.

### 3.2.6.8. View Available Machine List (Customer Role)

- Function trigger: User hovers on “Sản phẩm” tab, then clicks on “Tất cả” button.
- Function description:
  - Actors: Guest, Customer
  - Purpose: User wants to view the machine list available for renting.
- Screen layout:

Figure 60. View Available Machine List Web screen



Figure 61. View Machine List Mobile screen

- Function Detail:
  - Pre-condition:
    - Guests successfully access the website.
  - Post condition:
    - Success: User can view the available machine list, along with some summarized details about those machines
    - Fail: System shows error toast message
  - Data:
    - Image: text
    - MachineName: text
    - CategoryName: text
    - RentPrice: number
    - Summary: text
    - Model: text
    - Origin: text
  - Business rules: N/A.

### 3.2.6.9. View Machine Detail (Customer Role)

- Function trigger: User clicks on “Xem chi tiết” button of one of the machine in the list
- Function description:
  - Actors: Guest, Customer
  - Purpose: User wants to view the machine detail
- Screen layout:

The screenshot shows a web page for a 'Máy cắt CNC Plasma EMC-2000'. At the top, there's a navigation bar with links to 'Trang chủ', 'Sản phẩm', 'Tin tức', 'Quyền lợi', and 'Điều khoản'. On the right side of the header are icons for a user profile, a search bar, and a cart.

The main content area features a large image of the machine, which is a white cabinet with a control panel and a blue base. Below the image, there's a section for rental information: 'Giá thuê ước tính mỗi ngày: (Giá từng máy có thể thay đổi tùy vào độ tuổi hoặc công suất theo từng máy)' followed by '600.000 ₫' and a blue button labeled 'Thêm vào đơn hàng'.

On the right, there's detailed information about the machine:

- Thông tin chi tiết:**
  - Loại máy: Máy cắt
  - Xuất xứ: Vietnam
  - Model: EMC-2000
  - Chi tiết: Máy cắt CNC Plasma EMC-2000
- Bộ phận máy:**

No.	Tên bộ phận	Số lượng
1	Trục phay	2
2	Tấm cắt	1

**Ghi chú:** Trường hợp những bộ phận này bị hư hỏng sẽ có tính phí sửa chữa
- Thuộc tính máy:**

No.	Thuộc tính	Giá trị
1	Công suất	1200 W

Figure 62. View Machine Detail Web screen

The screenshot shows a mobile view of the same machine detail page. The main image of the 'Máy phay CNC 5 trục Hyundai Wia XF8500' is displayed. Below it, the price is listed as '400.000 ₫/ngày' (Estimated daily rent).

On the right, the detailed information is summarized:

- Thông tin chi tiết:**
  - Loại máy: Máy khoan
  - Xuất xứ: Antigua and Barbuda
  - Model: XF8500
  - Chi tiết: Máy phay CNC 5 trục Hyundai Wia XF8500
- Bộ phận máy:**

No.	Tên bộ phận	Số lượng
1	bàn phay	1
2	Trục phay	5
- Thuộc tính máy:**

No.	Thuộc tính	Giá trị
1	Công suất	1200 W

Figure 63. View Machine Detail Mobile screen

- Function Detail:
  - Pre-condition:
    - Guests successfully access the website.
  - Post condition:
    - Success: User can view the chosen machine detail
    - Fail: System shows error toast message
  - Data:
    - ImageList:

- Image: text
- MachineName: text
- CategoryName: text
- RentPrice: number
- Description: text
- Model: text
- Origin: text
- ComponentList:
  - ComponentName: text
  - ComponentQuantity: number
- AttributeList:
  - AttributeName: text
  - Unit: text
  - Specification: number
- MachineTermList:
  - Title: text
  - TermContent: text
- Business rules: N/A.

### 3.2.7 Manage Invoice Payment

#### 3.2.7.1 View Invoice Payment List

- Function trigger: Manager clicks on the “Hóa đơn” tab on the sidebar in the menu section.
- Function description:
  - Actors: Manager.
  - Purpose: Users want to view list invoice payment in the system.
- Screen layout:

The screenshot shows the 'Invoice' tab selected in the sidebar. The main area displays a table titled 'DANH SÁCH CÁC HÓA ĐƠN' (List of Invoices). The table has columns: Mã hóa đơn (Invoice ID), Tên người giao dịch (Trading partner), Loại hóa đơn (Invoice type), Tổng tiền (Total amount), Ngày thanh toán (Payment date), and Trạng thái (Status). The status column uses colored buttons: green for 'Đã thanh toán' (Paid), yellow for 'Đang chờ' (Pending), and red for 'Hủy thanh toán' (Cancelled). The table lists ten entries, each with a small edit icon next to the status button.

Mã hóa đơn	Tên người giao dịch	Loại hóa đơn	Tổng tiền	Ngày thanh toán	Trạng thái
INV20241120NO007	Trần Anh Lâm	Tiền thuê máy	139.800.800 VND	Chưa thanh toán	<span>Đang chờ</span>
INV20241120NO006	Trần Anh Lâm	Tiền cọc	60.000.000 VND	Chưa thanh toán	<span>Đang chờ</span>
INV20241120NO005	Trần Anh Lâm	Tiền sửa máy	400.000 VND	Chưa thanh toán	<span>Đang chờ</span>
INV20241120NO004	Trần Anh Lâm	Tiền thuê máy	2.485.500 VND	Chưa thanh toán	<span>Hủy thanh toán</span>
INV20241120NO003	Trần Anh Lâm	Tiền cọc	180.000.000 VND	Chưa thanh toán	<span>Hủy thanh toán</span>
INV20241120NO002	Trần Anh Lâm	Tiền thuê máy	74.179.000 VND	Chưa thanh toán	<span>Hủy thanh toán</span>
INV20241120NO001	Trần Anh Lâm	Tiền cọc	180.000.000 VND	Chưa thanh toán	<span>Hủy thanh toán</span>
INV20241119NO008	Trịnh Trần Tuấn Phương	Tiền thuê máy	74.165.000 VND	Chưa thanh toán	<span>Đang chờ</span>
INV20241119NO007	Trịnh Trần Tuấn Phương	Tiền cọc	180.000.000 VND	Chưa thanh toán	<span>Đang chờ</span>
INV20241119NO006	Trần Anh Lâm	Tiền thuê máy	61.443.000 VND	Chưa thanh toán	<span>Đang chờ</span>

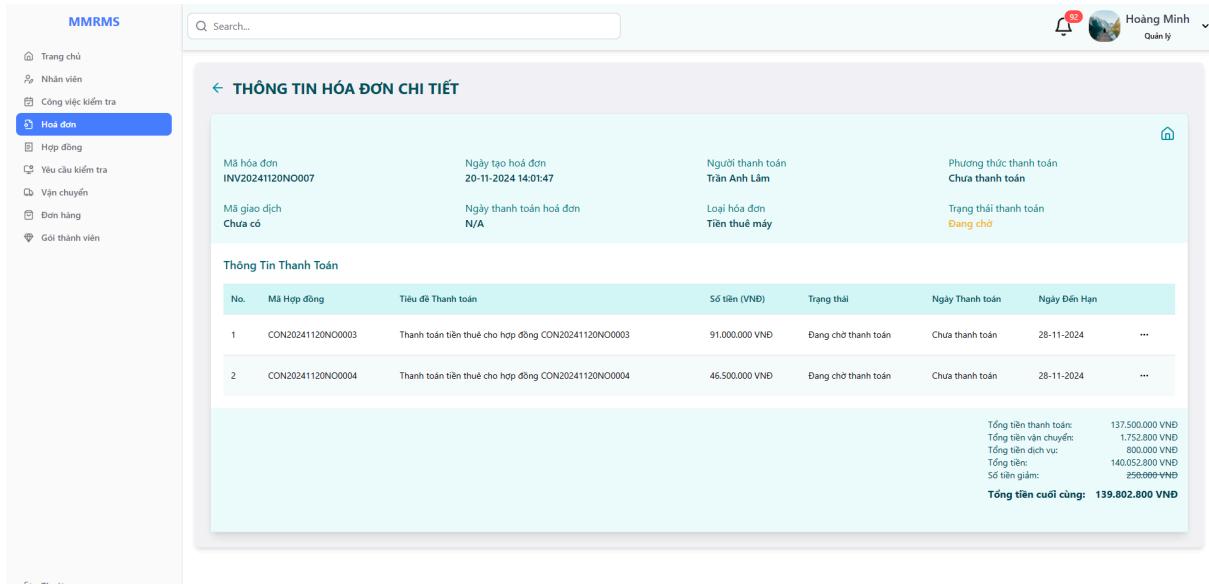
Figure 64. Invoice Management screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system manager account.
    - User has permissions to access the system.
  - Post condition:
    - Success: User can view all invoice payments in the system.

- Fail: When load data with an error, the system will show an error toast.
- Business rules: N/A.

### 3.2.7.2 View Invoice Payment Detail

- Function trigger: Manager clicks on “  ” with the data the user has chosen.
- Function description:
  - Actors: Manager.
  - Purpose: User wants to view invoice payment details in the system.
- Screen layout:



**THÔNG TIN HÓA ĐƠN CHI TIẾT**

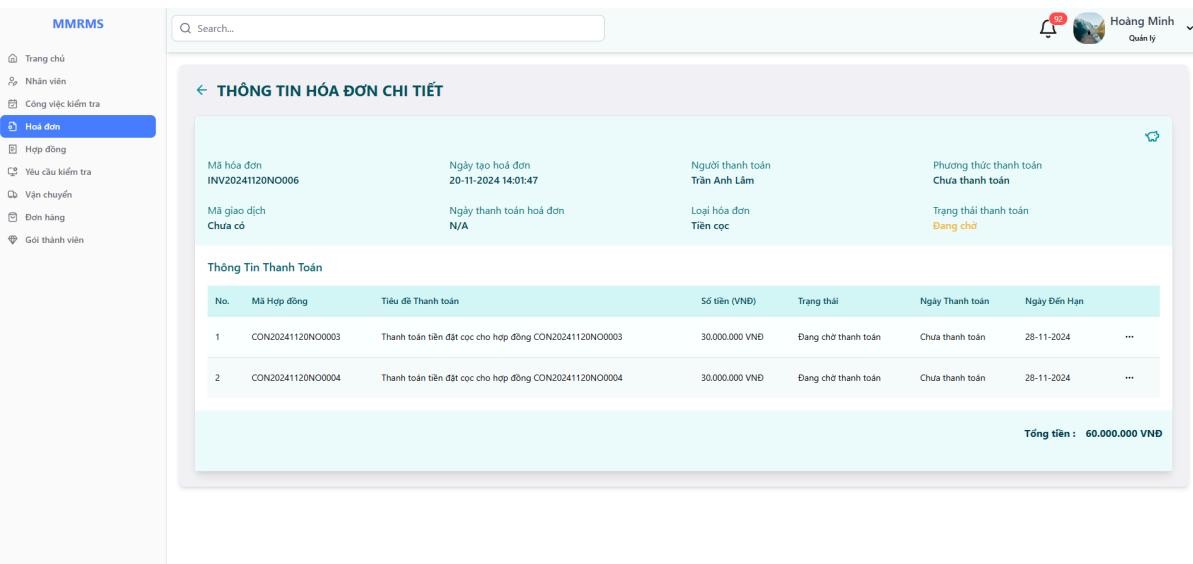
Mã hóa đơn INV20241120NO007	Ngày tạo hóa đơn 20-11-2024 14:01:47	Người thanh toán Trần Anh Lâm	Phương thức thanh toán Chưa thanh toán
Mã giao dịch Chưa có	Ngày thanh toán hóa đơn N/A	Loại hóa đơn Tiền thuê máy	Trạng thái thanh toán Đang chờ

**Thông Tin Thanh Toán**

No.	Mã Hợp đồng	Tiêu đề Thanh toán	Số tiền (VND)	Trạng thái	Ngày Thanh toán	Ngày Đến Hạn	
1	CON20241120NO0003	Thanh toán tiền thuê cho hợp đồng CON20241120NO0003	91.000.000 VND	Đang chờ thanh toán	Chưa thanh toán	28-11-2024	...
2	CON20241120NO0004	Thanh toán tiền thuê cho hợp đồng CON20241120NO0004	46.500.000 VND	Đang chờ thanh toán	Chưa thanh toán	28-11-2024	...

Tổng tiền thanh toán: 137.500.000 VND  
 Tổng tiền vận chuyển: 1.752.800 VND  
 Tổng tiền dịch vụ: 800.000 VND  
 Tổng tiền: 140.052.800 VND  
 Số tiền giảm: 256.000 VND  
**Tổng tiền cuối cùng: 139.802.800 VND**

Figure 65. Invoice : Type Renting



**THÔNG TIN HÓA ĐƠN CHI TIẾT**

Mã hóa đơn INV20241120NO006	Ngày tạo hóa đơn 20-11-2024 14:01:47	Người thanh toán Trần Anh Lâm	Phương thức thanh toán Chưa thanh toán
Mã giao dịch Chưa có	Ngày thanh toán hóa đơn N/A	Loại hóa đơn Tiền cọc	Trạng thái thanh toán Đang chờ

**Thông Tin Thanh Toán**

No.	Mã Hợp đồng	Tiêu đề Thanh toán	Số tiền (VND)	Trạng thái	Ngày Thanh toán	Ngày Đến Hạn	
1	CON20241120NO0003	Thanh toán tiền đặt cọc cho hợp đồng CON20241120NO0003	30.000.000 VND	Đang chờ thanh toán	Chưa thanh toán	28-11-2024	...
2	CON20241120NO0004	Thanh toán tiền đặt cọc cho hợp đồng CON20241120NO0004	30.000.000 VND	Đang chờ thanh toán	Chưa thanh toán	28-11-2024	...

**Tổng tiền: 60.000.000 VND**

Figure 66. Invoice : Type Deposit

The screenshot shows the 'THÔNG TIN HÓA ĐƠN CHI TIẾT' (Invoice Detail) screen. The left sidebar has a blue-highlighted 'Hóa đơn' tab. The main area displays an invoice for 'INV20241120NO005'. The details include:

- Mã hóa đơn: INV20241120NO005
- Ngày tạo hóa đơn: 20-11-2024 10:38:58
- Người thanh toán: Trần Anh Lâm
- Phương thức thanh toán: Chưa thanh toán
- Mã giao dịch: Chưa có
- Ngày thanh toán hóa đơn: N/A
- Loại hóa đơn: Tiền sửa máy
- Trạng thái thanh toán: Đang chờ

**Thông Tin Thanh Toán**

No.	Mã máy	Phụ kiện máy thay	Số lượng	Số tiền (VND)	Thành tiền
1	ZK4120-0002	Trục khoan tốc độ cao	1	400.000 VND	400.000 VND

Tổng tiền thay: 400.000 VND  
Phi sửa: 0 VND  
**Tổng tiền :** 400.000 VND

Figure 67. Invoice : Type Repair

The screenshot shows the 'THÔNG TIN HÓA ĐƠN CHI TIẾT' (Invoice Detail) screen. The left sidebar has a blue-highlighted 'Hóa đơn' tab. The main area displays an invoice for 'INV20241116NO009'. The details include:

- Mã hóa đơn: INV20241116NO009
- Ngày tạo hóa đơn: 16-11-2024 15:49:26
- Người thanh toán: Khoa
- Trạng thái thanh toán: Đã thanh toán
- Loại hóa đơn: Tiền trả cọc
- Ngày thanh toán hóa đơn: 16-11-2024 15:49:26

**Thông Tin Thanh Toán**

No.	Mã máy	Phụ kiện sửa chữa	Giá thay / 1 phụ kiện	Số lượng	Thành tiền	Giá sửa chữa	Tổng phí
1	TOYODA-0002	Đá mài	300.000 VND	3	900.000 VND	100.000 VND	1.000.000 VND

Hóa đơn hoàn trả tiền đặt cọc cho hợp đồng CON20241114NO0001

Tiền cọc ban đầu : 30.000.000 VND  
Tổng tiền sửa chữa : 1.000.000 VND  
Tổng tiền phải trả cọc : 29.000.000 VND  
**Tổng tiền cuối cùng :** 30.000.000 VND

Figure 68. Invoice : Type Refund

- Function Detail:

- Pre-condition:
  - User is successfully logs into the system manager account.
  - User has permissions to access the system.
  - User is in "Hóa đơn" screen.
- Post condition:
  - Success: User can view invoice payment details in the system.
  - Fail: When load data with an error, the system will show an error toast.
- Business rules: N/A.

### 3.2.7.3 View Invoice List (Customer Role)

- Function trigger: User clicks on "Thanh toán" tab to navigate to Invoice page

- Function description:
  - Actors: Customer
  - Purpose: User wants to view the account invoice list
- Screen layout:

No.	Mã thanh toán	Loại	Ngày tạo	Trạng thái	Khoản tiền
1	INV20241120NO010	Tiền thuê	20-11-2024	Đã hủy	3.933.200 đ
2	INV20241120NO009	Tiền cọc	20-11-2024	Đã hủy	150.000.000 đ
3	INV20241120NO008	Tiền thuê	20-11-2024	Chưa thanh toán	61.500.000 đ
4	INV20241120NO007	Tiền thuê	20-11-2024	Hoàn tất	139.802.800 đ
5	INV20241120NO006	Tiền cọc	20-11-2024	Hoàn tất	60.000.000 đ

Figure 69. View Invoice List Web screen

Figure 70. View Invoice List Mobile screen

- Function Detail:
  - Pre-condition:
    - Customer successfully logged into the system
    - Customer already have some invoices in the account

- Post condition:
  - Success: User can view the account invoices
  - Fail: System shows error toast message
- Data:
  - InvoiceId: text
  - InvoiceType: text
  - DateCreate: text
  - Status: text
  - Amount: text
- Business rules: BR-26.

### 3.2.7.4 View Invoice Detail (Customer Role)

- Function trigger: User clicks on an invoice from the invoice list
- Function description:
  - Actors: Customer
  - Purpose: User wants to view the chosen invoice detail
- Screen layout:

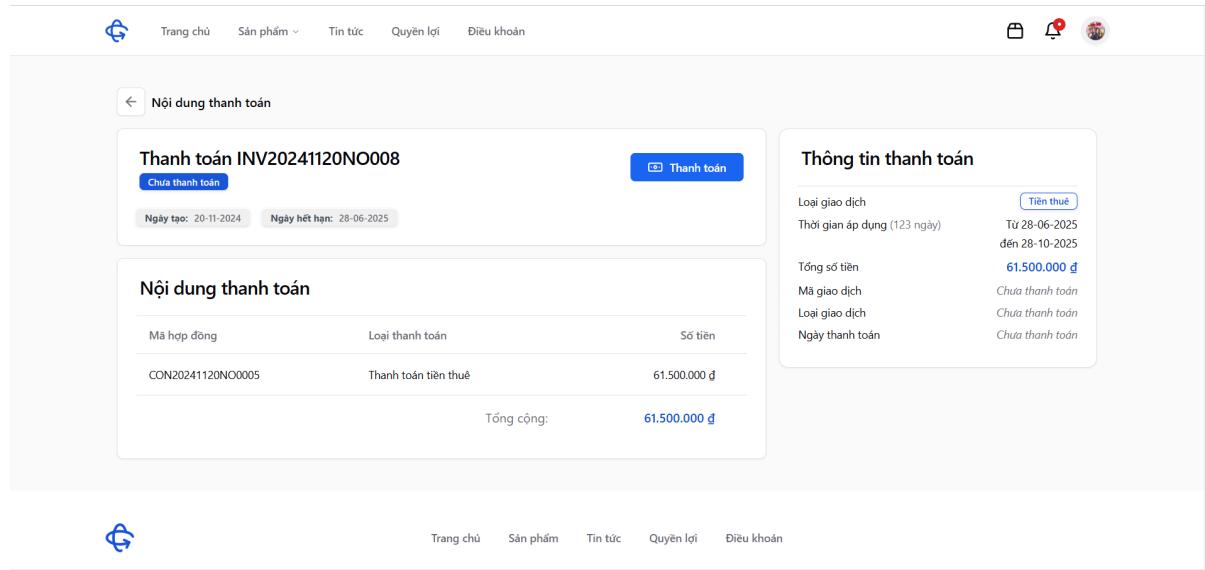


Figure 71. View Invoice Detail Web screen

← Thông tin đơn thanh toán

**Thanh toán INV20241130NO008**

Chưa thanh toán

---

Ngày tạo: 30-11-2024  
Ngày thanh toán: (Chưa có)

Thông tin	
Loại thanh toán	Tiền thuê
Thời gian áp dụng (123 ngày)	Từ 12-03-2025 đến 12-07-2025
Tổng số tiền	<b>615.000.000 đ</b>
Mã giao dịch	Chưa thanh toán
Loại giao dịch	Chưa thanh toán
Ngày thanh toán	Chưa thanh toán

Nội dung	
Mã hợp đồng	Số tiền
CON20241130NO0006	<b>615.000.000 đ</b>
Tổng cộng	<b>615.000.000 đ</b>

Thanh toán

*Figure 72. View Invoice Detail Mobile screen*

- Function Detail:
  - Pre-condition:
    - Customer successfully logged into the system
    - Customer already have some invoices in the account
  - Post condition:
    - Success: User can view the account invoice detail
    - Fail: System shows error toast message
  - Data:
    - InvoiceId: text
    - InvoiceType: text
    - DateCreate: text
    - Status: text
    - Amount: text
    - TransactionId: text
    - TransactionType: text
    - TransactionDate: text
    - ContractList: (Type: Rental or Deposit)
      - ContractId: text
      - PaymentPurpose: text
      - Amount: number
    - TicketList: (Type: Ticket)
      - TicketId: text
      - SerialNumber: text
      - ComponentName: text
      - Amount: number
      - Quantity: number

- Business rules: N/A

### 3.2.7.5 Pay Invoice (Customer Role)

- Function trigger: User clicks on the “⋮” button of an invoice, then clicks on “Thanh toán” button
- Function description:
  - Actors: Customer
  - Purpose: User wants to pay for an invoice
- Screen layout:

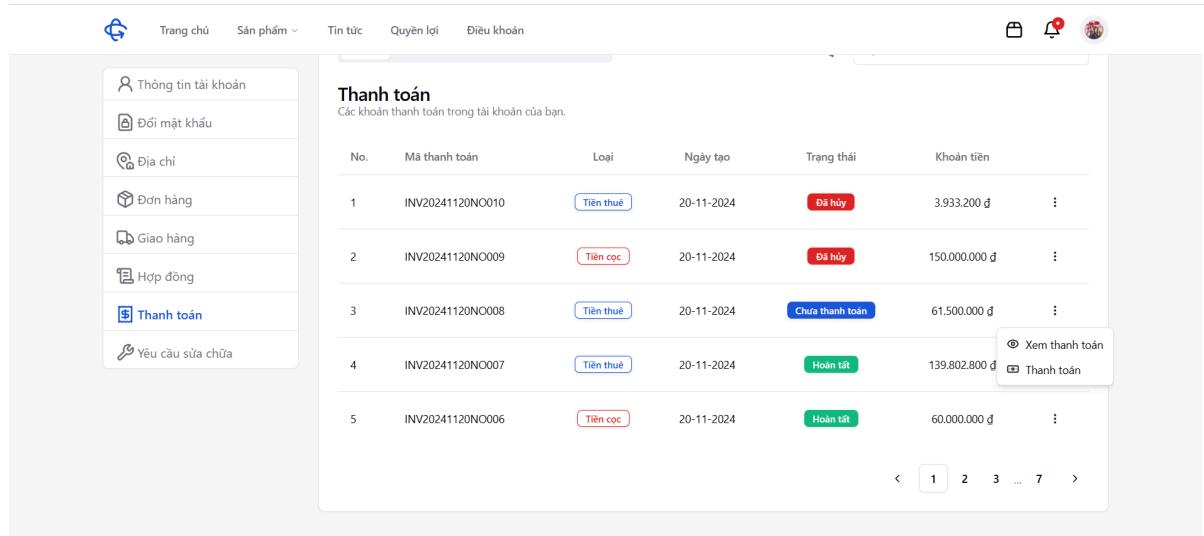


Figure 73. Pay Invoice Web screen 1: Choose the pay option

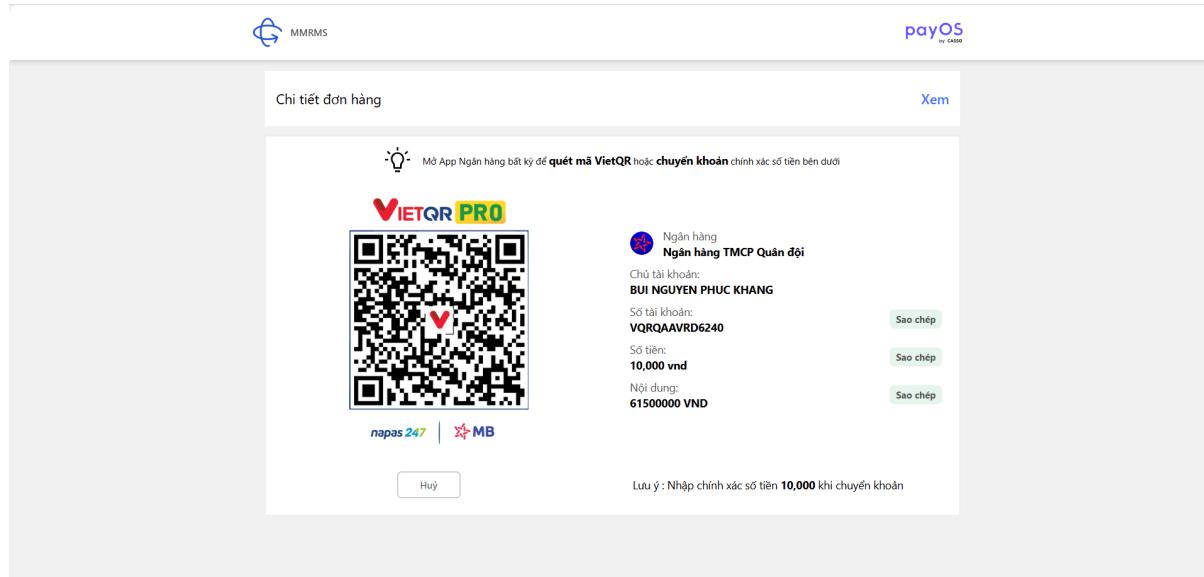


Figure 74. Pay Invoice Web screen 2: PayOS screen

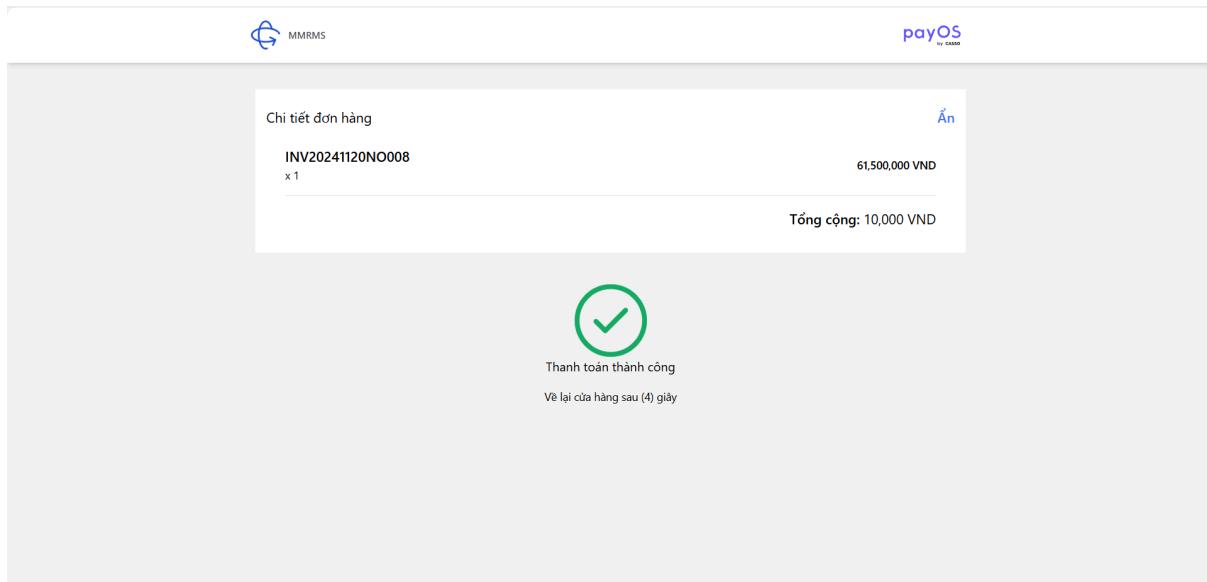


Figure 75. Pay Invoice Web screen 3: Success PayOS screen

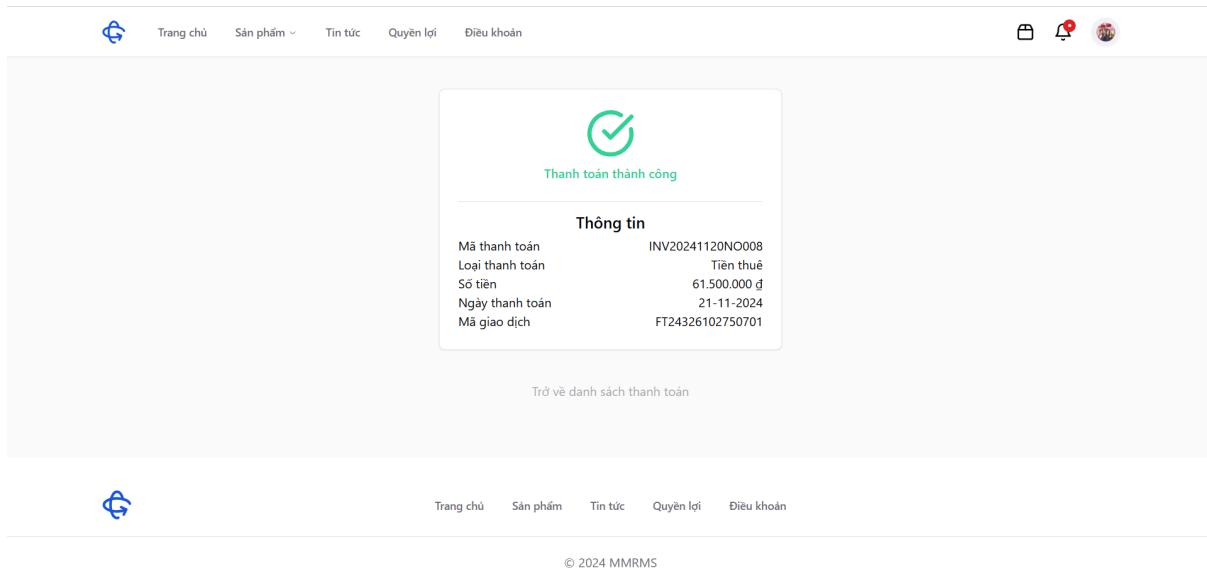


Figure 76. Pay Invoice Web screen 4: Success Pay Invoice screen

← Thông tin đơn thanh toán

**Thanh toán INV20241125NO004**

Chưa thanh toán

Ngày tạo: 25-11-2024  
Ngày thanh toán: (Chưa có)

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**Thông tin**

Loại thanh toán	<span style="border: 1px solid #ccc; border-radius: 10px; padding: 2px 10px; background-color: #FFF;">Tiền sửa chữa</span>
Tiền dịch vụ sửa chữa	111.000 đ
Tổng số tiền	<b>211.000 đ</b>
Mã giao dịch	Chưa thanh toán
Loại giao dịch	Chưa thanh toán
Ngày thanh toán	Chưa thanh toán

---

**Nội dung**

Mã ticket	CRT20241125NO004
Loại máy	ZK4120-0002
Tên bộ phận	Trục khoan tốc độ cao
Số lượng	x 1
Giá bộ phận	400.000 đ

Thanh toán
Hủy sửa chữa

Figure 77. Pay Invoice Mobile screen 1: Invoice Detail Option Mobile screen

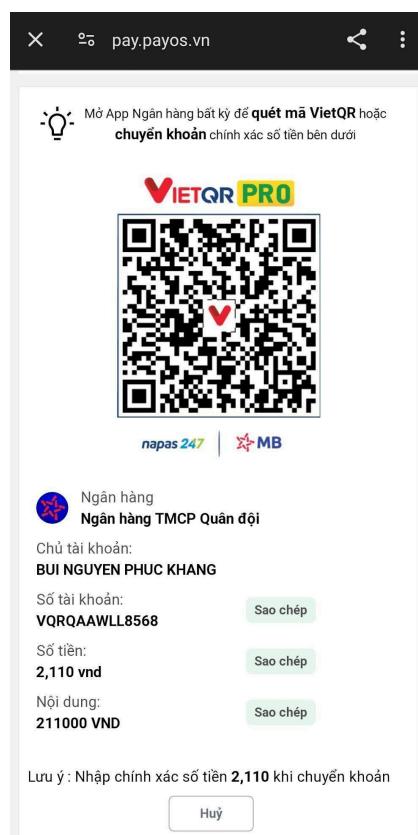


Figure 78. Pay Invoice Mobile screen 2: PayOS screen

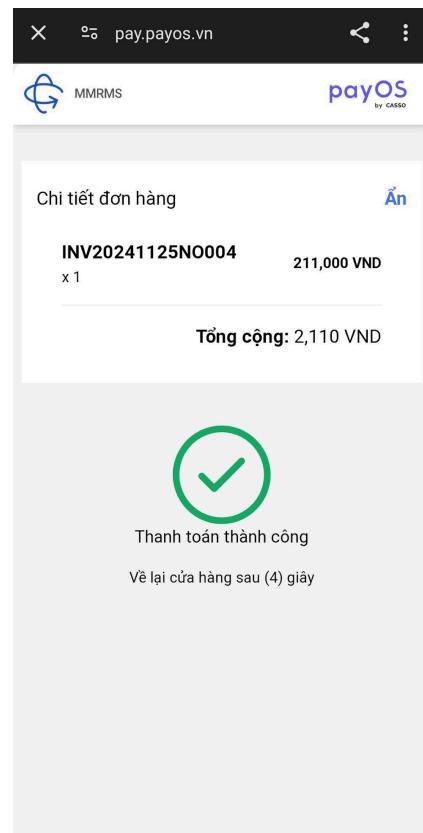


Figure 79. Pay Invoice Mobile screen 3: Success PayOS screen

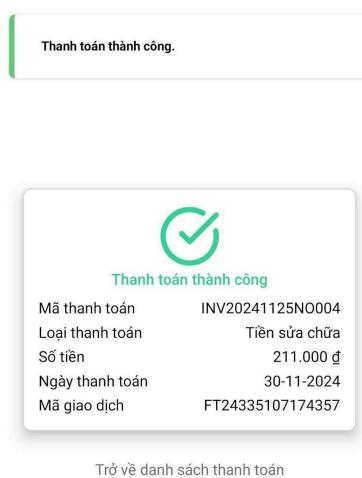


Figure 80. Pay Invoice Mobile screen 4: Pay Invoice Success screen

- Function Detail:

- Pre-condition:
  - Customer successfully logged into the system
  - Customer have a “Chưa thanh toán” invoice
- Post condition:
  - Success: User successfully pays for the invoice, invoice status is changed
  - Fail: System will navigate user back to invoice list and show an error toast message
- Business rules: N/A

### 3.2.7.6 Cancel Ticket Payment (Customer Role)

- Function trigger: User clicks on the “Hủy thanh toán” button of an invoice, then clicks on “Tôi đồng ý” button
- Function description:
  - Actors: Customer
  - Purpose: User wants to cancel ticket payment
- Screen layout:

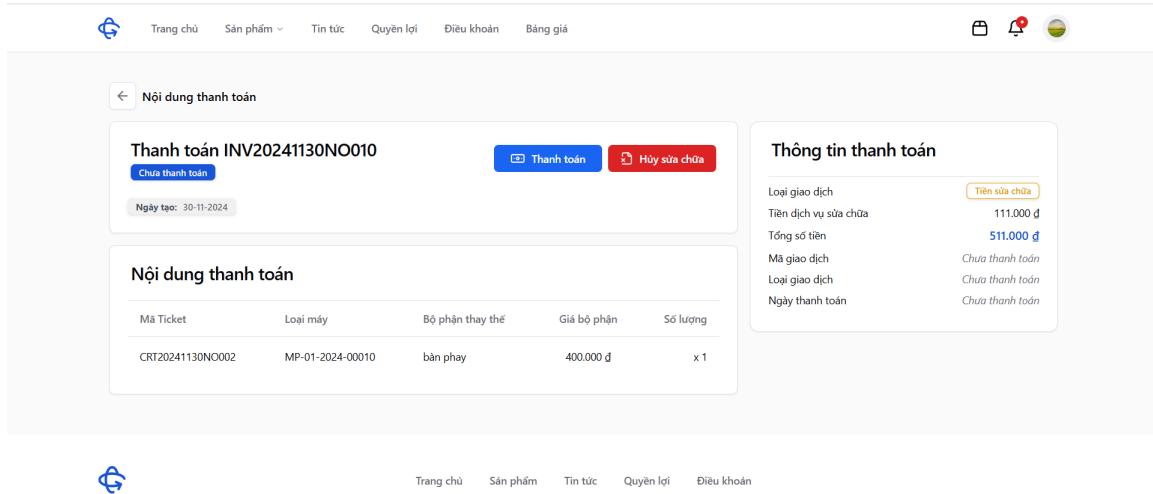


Figure 81. Cancel Ticket Payment Web screen 1: Invoice Detail

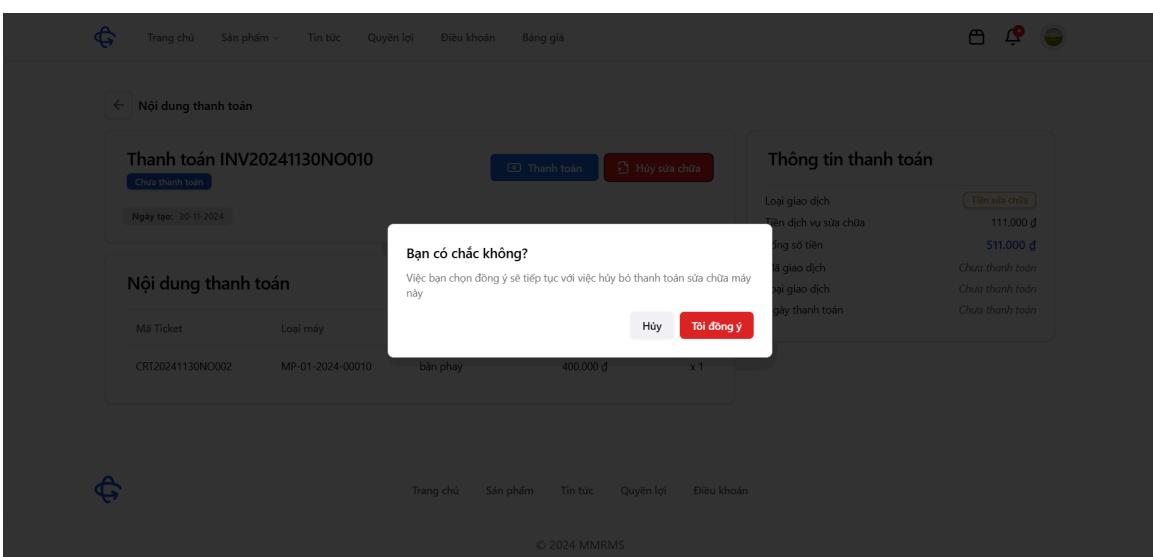


Figure 82. Cancel Ticket Payment Web screen 2: Cancel modal

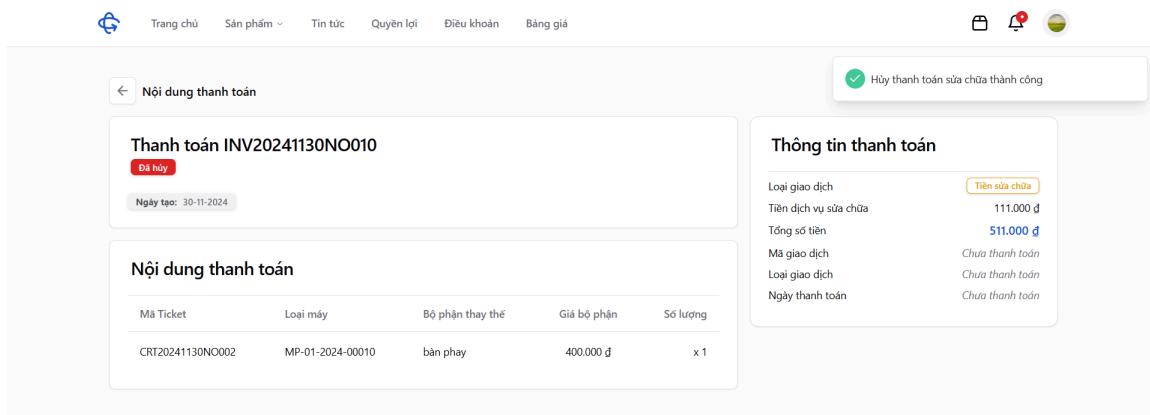
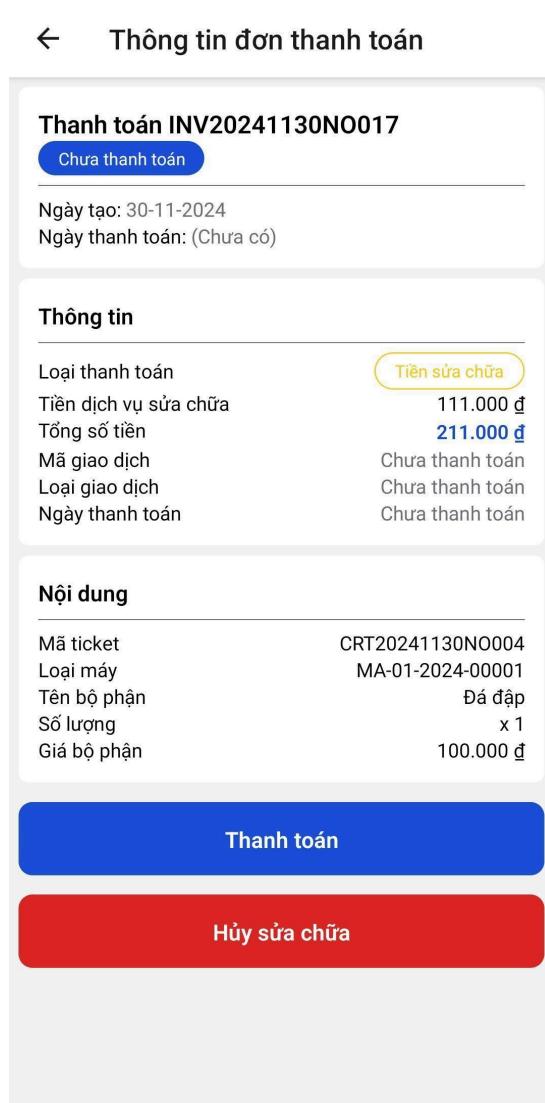
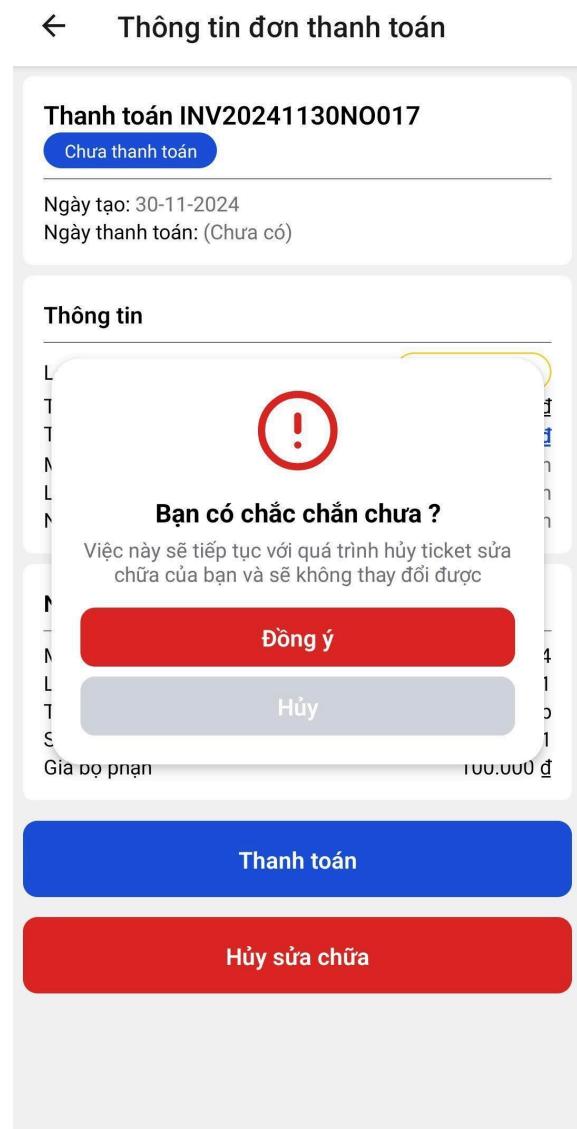


Figure 83. Cancel Ticket Payment Web screen 3: Success Cancel



*Figure 84. Cancel Ticket Payment Mobile screen 1: Invoice Detail**Figure 85. Cancel Ticket Payment Mobile screen 2: Cancel Modal*

← Thông tin đơn thanh toán

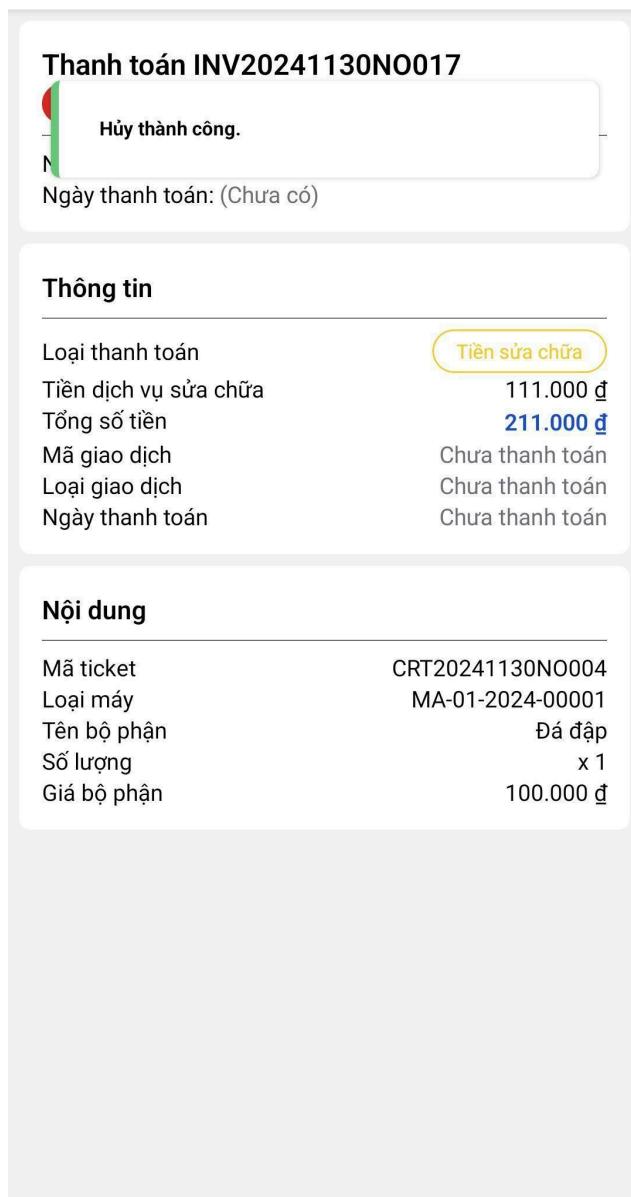


Figure 86. Cancel Ticket Payment Mobile screen 3: Cancel Success

- Function Detail:
  - Pre-condition:
    - Customer successfully logged into the system
    - Customer have a “Chưa thanh toán” invoice
    - The invoice have type of “Tiền sửa chữa”
  - Post condition:
    - Success: User successfully cancel the ticket payment
    - Fail: System will navigate user back to invoice list and show an error toast message
  - Business rules: N/A

### 3.2.8 Manage Contract

#### 3.2.8.1 View Contract List

- Function trigger: Manager clicks on “Hợp đồng” on sidebar in menu section.

- Function description:
  - Actors: Manager .
  - Purpose: Users want to view the contract list in the system.
- Screen layout:

The screenshot displays the 'DANH SÁCH HỢP ĐỒNG' (Contract List) page. At the top, there's a navigation bar with links like Trang chủ, Nhân viên, Công việc kiểm tra, Hoá đơn, and Hợp đồng. The 'Hợp đồng' link is highlighted. Below the navigation is a search bar labeled 'Search...'. The main content area has a title 'DANH SÁCH HỢP ĐỒNG' and a sub-section 'Tim kiếm hợp đồng' with various filter buttons. Three contract entries are listed:

Mã hợp đồng	Máy thuê	Máy mua	Ngày bắt đầu hợp đồng	Ngày hết hạn hợp đồng
CON20241120NO0004	Máy mài mặt phẳng Perfect PFG-H2045	PFG-H2045-002	28-11-2024	28-02-2025
CON20241120NO0003	Máy mài mặt phẳng Perfect PFG-H2045	PFG-H2045-003	28-11-2024	28-05-2025
CON20241120NO0002	Máy khoan bắn taro WDDM ZS4125D	ZS4125D-002	28-11-2024	28-05-2025

Each row includes a 'Hiển tại khách hàng chưa kí' (Show to customer not signed) button. At the bottom left is a 'Thoát' (Logout) link.

Figure 87. Contract Management screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system manager account.
    - User has permissions to access the system.
  - Post condition:
    - Success: User can view all contracts in the system.
    - Fail: When load data with an error, the system will show an error toast.
  - Business rules: N/A.

### 3.2.8.2 View Contract Repair History

- Function trigger: Manager clicks on “Xem lịch sử các ticket” which data user choose.
- Function description:
  - Actors: Manager.
  - Purpose: Users want to view contract repair history in the system.
- Screen layout:

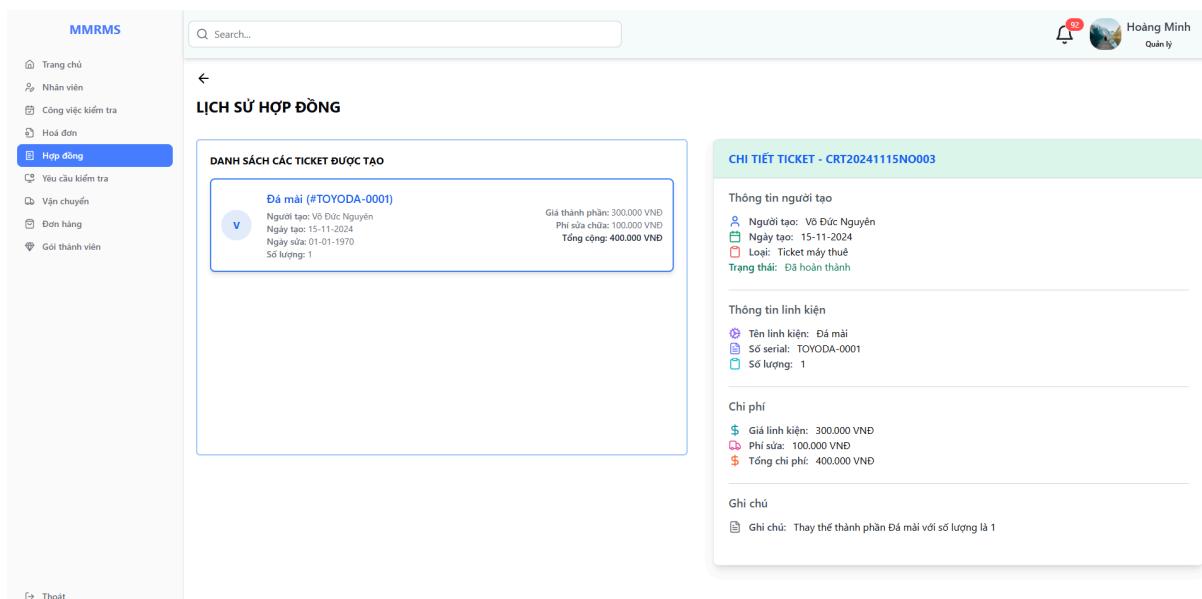


Figure 88. View Contract Ticket Repair screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system manager account.
    - User has permissions to access the system.
    - User is in “Hợp đồng” screen.
    - User is filter contracts without status “Chưa kí” và “Đã kí thành công”.
  - Post condition:
    - Success: User can view all contract repair history in the system.
    - Fail: When load data with an error, the system will show an error toast.
  - Business rules: BR-37.

### 3.2.8.3 View Detail Contract

- Function trigger: Manager clicks on “Xem hợp đồng” which data user choose.
- Function description:
  - Actors: Manager.
  - Purpose: Users want to view the contract details in the system.
- Screen layout:

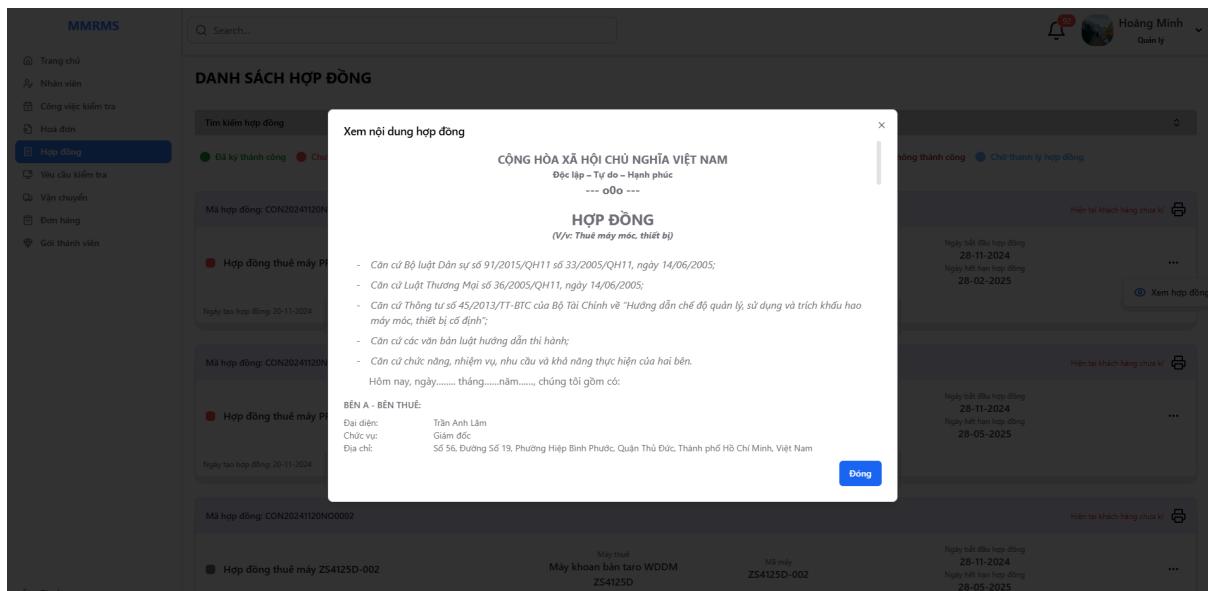


Figure 89. View Contract Detail screen

- Function Detail:

- Pre-condition:

- User is successfully logs into the system manager account.
    - User has permissions to access the system.
    - User is in “Hợp đồng” screen.

- Post condition:

- Success: Users can view contract details in the system.
    - Fail: When load data with an error, the system will show an error toast.

- Business rules: BR-38.

### 3.2.8.4 Refund Deposit Terminate Contract

- Function trigger: Manager clicks on “Thanh lý” which the data user chooses.

- Function description:

- Actors: Manager.
  - Purpose: Users want to finish contract processing in the system.

- Screen layout:

MMRMS	THANH LÝ HỢP ĐỒNG	
<ul style="list-style-type: none"> <li>Trang chủ</li> <li>Tài khoản</li> <li>Công việc kiểm tra</li> <li>Hoa đơn</li> <li><b>Hợp đồng</b></li> <li>Yêu cầu kiểm tra</li> <li>Vận chuyển</li> <li>Lịch làm việc</li> <li>Bom hàng</li> <li>Gói thành viên</li> </ul>	<p><b>Hợp đồng thuê máy ZS4125D-005</b></p> <p><b>BÊN THUÊ (BÊN B)</b></p> <p>Tên công ty: CÔNG TY CỔ PHẦN SẢN XUẤT VÀ KINH DOANH VINFAST Mã số thuế: 0107894416 Địa chỉ công ty: Khu Kinh tế Đình Vũ - Cát Hải, đảo Cát Hải, Thị Trấn Cát Hải, Huyện Cát Hải, Thành phố Hải Phòng, Việt Nam Người đại diện: Trịnh Trần Tuấn Phương Chức vụ: Quản lý Số điện thoại: 0123123122 Email: nguyen12@gmail.com</p> <p><b>THÔNG TIN MÁY MÓC THUÊ</b></p> <p>Tên máy: Máy khoan bắn taro WDDM ZS4125D Mã máy: ZS4125D-005</p> <p><b>THÔNG TIN THANH TOÁN</b></p> <p>Tiền thuê 1 ngày: 400.000 VNĐ Số ngày thuê: 182 ngày Tổng số tiền thuê: 72.800.000 VNĐ Tổng số tiền đặt cọc: 180.000.000 VNĐ Tiền ship khách trả trước khi thuê (dự kiến): 977.500 VNĐ Tiền ship cộng cho khách khi dư (nếu có): 0 VNĐ Tiền cọc phái trả:</p> <p>Tổng cộng tiền trả cọc (dự kiến): 180.000.000 VNĐ</p> <p>180.000.000 đ <span style="border: 1px solid #0070C0; padding: 2px 10px;">Thanh toán tiền đặt cọc</span></p>	
	<p><b>DANH SÁCH CÁC TICKET ĐƯỢC TẠO</b></p> <p>(*) Máy không gặp vấn đề. Không có ticket nào được tạo.</p>	
	<p><b>DANH SÁCH CÁC KHOẢN PHÍ PHẠT VÀ CHUA THANH TOÁN</b></p> <p>(*) Khách hàng không vi phạm bất cứ điều khoản nào trong hợp đồng.</p>	

Figure 90. View Contract Refund screen

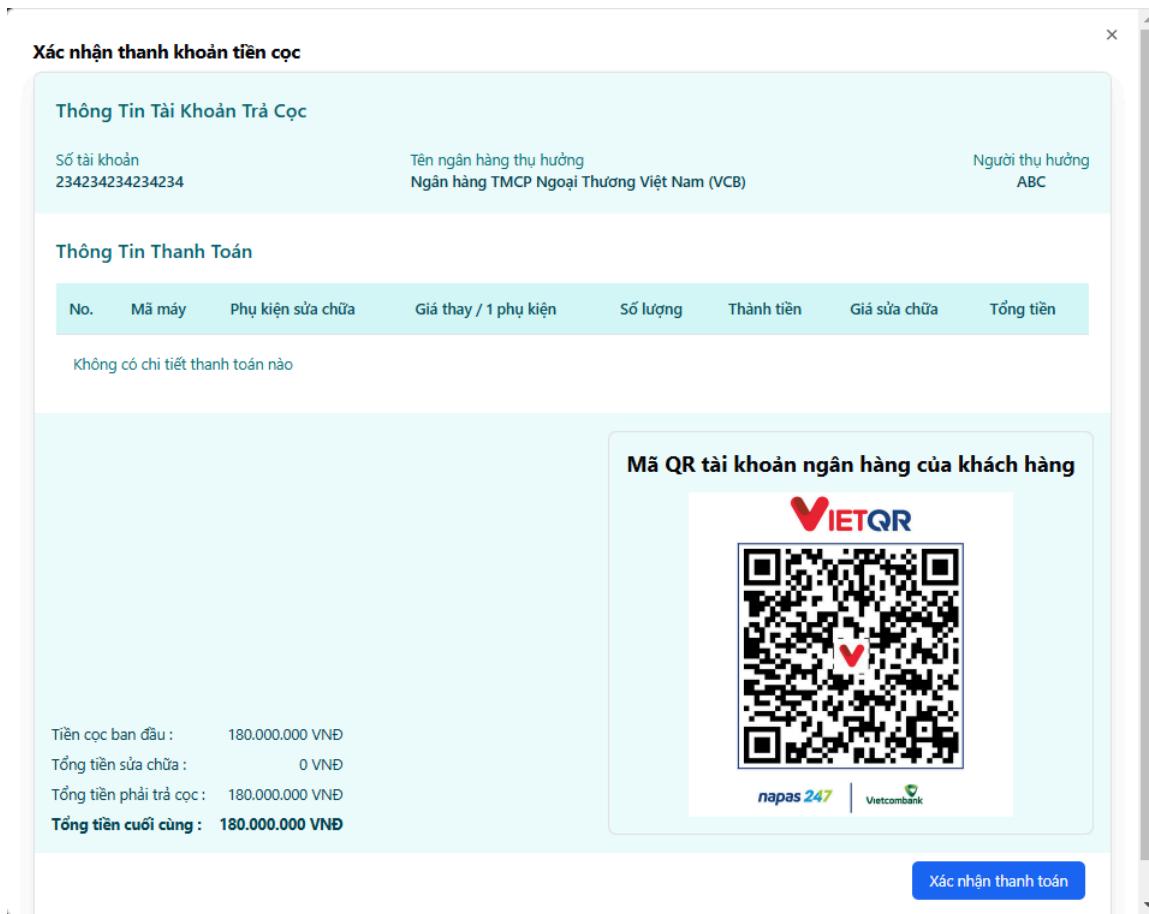


Figure 91. Refund Contract screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system manager account.
    - User has permissions to access the system.
    - User is in “Hợp đồng” screen.
    - User is filter contract with status “Đang chờ thanh lý”.
  - Post condition:
    - Success: Users can finish contract processing in the system.
    - Fail: When load data with an error, the system will show an error toast.
  - Business rules: BR-42, BR-43, BR-55.

### 3.2.8.5 View Contract List (Customer Role)

- Function trigger: User clicks on “Hợp đồng” tab to navigate to Contract page
- Function description:
  - Actors: Customer
  - Purpose: User wants to view the account contract list
- Screen layout:

No.	Loại máy	Tiền thuê/Ngày	Trạng thái	Ngày bắt đầu	Ngày kết thúc	⋮
1	Máy cắt CNC Plasma EMC-2000 Mã máy: EMC-2000-001 Mã HD: CON20241120NO0006	600.000 đ	<span style="background-color: red; color: white; padding: 2px;">Đã hủy</span>	28-11-2024	28-02-2025	⋮
2	Máy khoan bù CNC ZK4120 Mã máy: ZK4120-0002 Mã HD: CON20241120NO0005	500.000 đ	<span style="background-color: blue; color: white; padding: 2px;">Đã ký</span>	28-06-2025	28-10-2025	⋮
3	Máy mài mặt phẳng Perfect PFG-H2045 Mã máy: PFG-H2045-002 Mã HD: CON20241120NO0004	500.000 đ	<span style="background-color: blue; color: white; padding: 2px;">Đã ký</span>	28-11-2024	28-02-2025	⋮
4	Máy mài mặt phẳng Perfect PFG-H2045 Mã máy: PFG-H2045-003 Mã HD: CON20241120NO0003	500.000 đ	<span style="background-color: blue; color: white; padding: 2px;">Đã ký</span>	28-11-2024	28-05-2025	⋮
5	Máy khoan bù taro WDDM ZS4125D Mã máy: ZS4125D-002 Mã HD: CON20241120NO0002	400.000 đ	<span style="background-color: red; color: white; padding: 2px;">Đã hủy</span>	28-11-2024	28-05-2025	⋮

Figure 92. View Contract List Web screen

Figure 93. View Contract List Mobile screen

- Function Detail:
  - Pre-condition:
    - Customer successfully logged into the system
    - Customer already have some contracts in the account
  - Post condition:
    - Success: User can view the account contracts
    - Fail: System shows error toast message
  - Data:

- MachineName: text
- SerialNumber: text
- ContractId: text
- Status: text
- RentPricePerDay: text
- DateStart: text
- DateEnd: text
- Business rules: BR-27

### 3.2.8.6 View Contract Detail (Customer Role)

- Function trigger: User choose a contract that they want to see its detail
- Function description:
  - Actors: Customer
  - Purpose: User wants to view the contract detail
- Screen layout:

The screenshot displays a web-based application interface for viewing contract details. At the top, there is a navigation bar with links: Trang chủ, Sản phẩm, Tin tức, Quyền lợi, Điều khoản, and Bảng giá. On the right side of the header are icons for a user profile, location, and search.

**Contract Summary:**

- Hợp đồng CON20241130NO0003
- Đang giao
- Ngày tạo: 30-11-2024 | Ngày bắt đầu: 19-12-2024 | Ngày kết: 30-11-2024 | Trả tiền: Theo tháng

**Customer Information:**

Khách hàng		Thông tin ngân hàng	
Tên người đặt	Nguyễn Anh Tú	Số tài khoản	5345345
Số điện thoại	0798078551	Tên ngân hàng	Ngân hàng TMCP Ngoại Thương Việt Nam (VCB)
Tên công ty	CÔNG TY TNHH HÀO HÀN LOGISTICS	Tên người nhận	345345345
Email	trivm182003@gmail.com		

**Máy móc:**

Loại máy	Tiền thuê/Ngày
Máy phay giường Vison Wide MS-3117 Mã máy: MK-01-2024-00007	350.000 đ

**Payment History:**

Lịch sử		Thanh toán	Sửa chữa
Mã thanh toán	INV20241130NO001	Tiền cọc	
Loại thanh toán		Hoàn tất	
Trạng thái			
Thời gian áp dụng	(152 ngày) Từ 19-12-2024 đến 19-05-2025		
Tổng số tiền	105.000.000 đ		
Mã thanh toán	INV20241130NO002	Tiền hoàn trả	
Loại thanh toán		Chưa thanh toán	
Trạng thái			
Thời gian áp dụng	(152 ngày) Từ 19-05-2025 đến 19-05-2025		
Tổng số tiền	105.000.000 đ		

Figure 94. View Contract Detail Web screen

← Thông tin hợp đồng

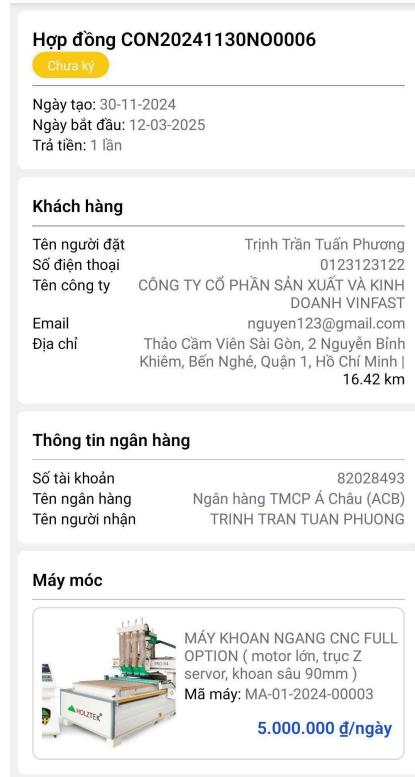


Figure 95. View Contract Detail Mobile screen

- Function Detail:
  - Pre-condition:
    - Customer successfully logged into the system
    - Customer already have some contracts in the account
  - Post condition:
    - Success: User can view the contract details
    - Fail: System shows error toast message
  - Data:
    - DateSign: text
    - ContractId: text
    - MMRMSInfo:
      - HeadOfCompany: text
      - Position: text
      - Address: text
      - Phone: text
      - CompanyName: text
      - TaxCode: text
    - CustomerInfo:
      - Name: text
      - Position: text
      - Address: text
      - Phone: text
      - CompanyName: text
      - TaxCode: text
    - Machine:
      - MachineName: text

- SerialNumber: text
- RentMonth: number
- RentPrice: number
- InvoiceHistory:
  - InvoiceId: text
  - Type: text
  - Status: text
  - Period: number
  - DateStart: text
  - DateEnd: text
  - Total: number
- TicketHistory:
  - TicketId: text
  - Status: text
  - ComponentName: text
  - Quantity: number
  - Amount: number
  - DateCreate: text
  - DateStart: text
  - DateEnd: text
- Business rules: N/A

### 3.2.8.7 Extend Contract

- Function trigger: User clicks on “⋮” button, then clicks on “Gia hạn hợp đồng” button
- Function description:
  - Actors: Customer
  - Purpose: User wants to extend a contract that they are currently renting
- Screen layout:

The screenshot shows a user interface for managing contracts. On the left, there is a sidebar with links: Thông tin tài khoản, Đổi mật khẩu, Địa chỉ, Đơn hàng, Giao hàng, Hợp đồng (selected), Thanh toán, and Yêu cầu sửa chữa. The main area displays a table of contracts with columns: Số (No.), Loại máy (Machine Type), Tiền thuê/Ngày (Rent Price/Day), Trạng thái (Status), Ngày bắt đầu (Start Date), Ngày kết thúc (End Date), and an ellipsis button. A context menu is open over the 11th row, listing: Xem hợp đồng (View Contract), Gia hạn hợp đồng (Extend Contract), and Hủy hợp đồng (Cancel Contract). The table has 15 rows of data.

No.	Loại máy	Tiền thuê/Ngày	Trạng thái	Ngày bắt đầu	Ngày kết thúc
11	MÁY MÀI Phẳng CNC – TOYODA Máy mài: TOYODA-0001 Mã HD: CON20241115NO0002	100.000 đ	Đợi kiểm tra	25-11-2024	20-11-2024
12	Máy mài tròn CNC Studer S33 Máy mài: Studer_S33_002 Mã HD: CON20241115NO0001	500.000 đ	Đang được thuê	25-11-2024	25-06-2025
13	Máy khoan bàn CNC ZK4120 Máy mài: ZK4120-0002 Mã HD: CON20241114NO0005	500.000 đ	Đang được thuê	28-11-2024	28-06-2025
14	Máy mài mặt phẳng Perfect PFG-H2045 Máy mài: PFG-H2045-004 Mã HD: CON20241114NO0004	500.000 đ	Đang được thuê	28-11-2024	28-06-2025
15	Máy mài mặt phẳng Perfect PFG-H2045 Máy mài: PFG-H2045-003 Mã HD: CON20241114NO0003	500.000 đ	Đã hoàn tất	28-11-2024	15-11-2024

Figure 96. Extend Contract screen 1: Extend Option

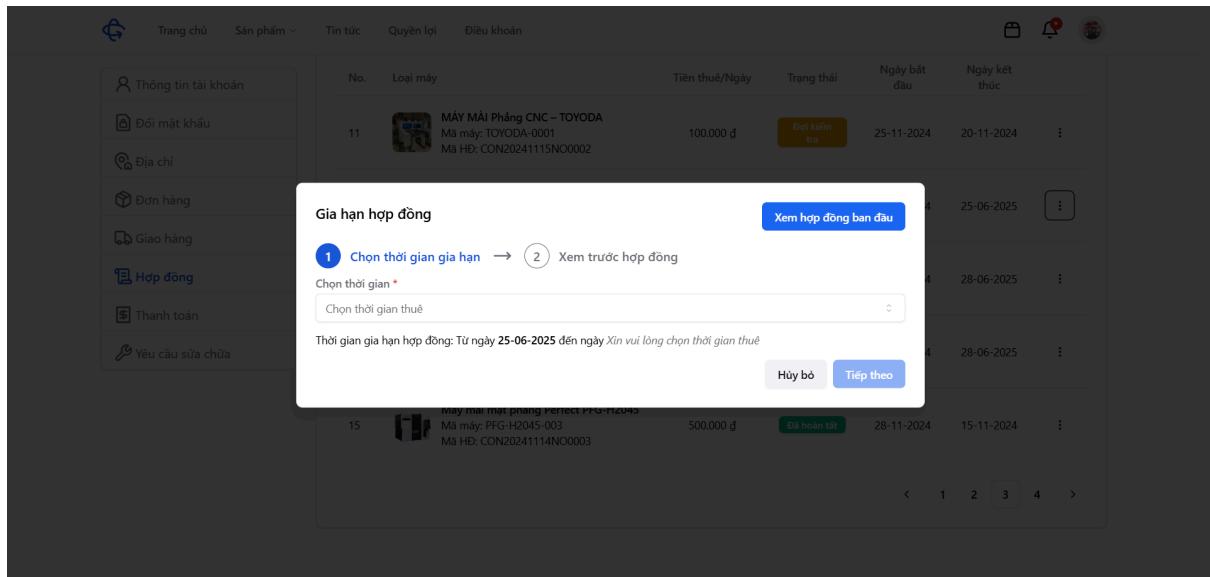


Figure 97. Extend Contract screen 2: Choose duration modal

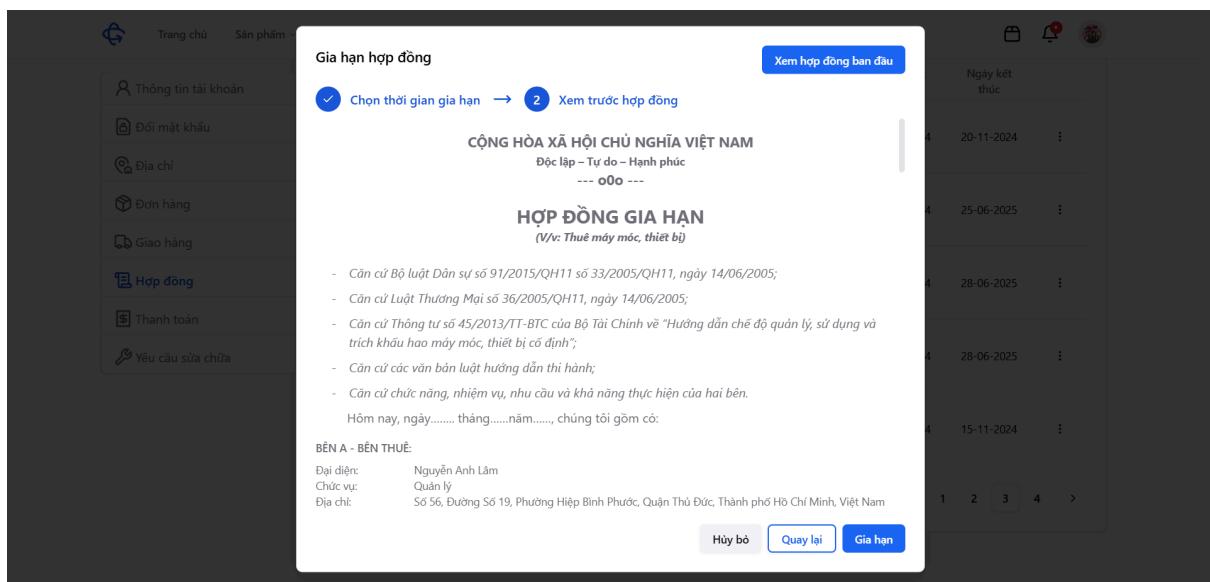


Figure 98. Extend Contract screen 3: Preview extend contract modal

- Function Detail:
  - Pre-condition:
    - Customer successfully logged into the system
    - Customer has a contract that is currently renting and has not been extended before
  - Post condition:
    - Success: System creates a new extended contract based on the original contract
    - Fail: System shows error toast message
  - Data:
    - RentMonth: number
    - DateStart: text
    - DateEnd: text
  - Business rules: BR-30, BR-29, BR-31

### 3.2.8.8 Cancel Contract

- Function trigger: User clicks on “⋮” button, then clicks on “Hủy hợp đồng” button
- Function description:
  - Actors: Customer
  - Purpose: User wants to extend a contract that they are currently renting
- Screen layout:

No.	Loại máy	Tiền thuê/Ngày	Trạng thái	Ngày bắt đầu	Ngày kết thúc
11	MÁY MÀI Phẳng CNC – TOYODA Máy mài: TOYODA-0001 Mã HD: CON20241115NO0002	100.000 đ	<span style="background-color: orange;">Đợi kiểm tra</span>	25-11-2024	20-11-2024
12	Máy mài tròn CNC Studer S33 Máy mài: Studer_S33_002 Mã HD: CON20241115NO0001	500.000 đ	<span style="background-color: green;">Đang được thuê</span>	25-11-2024	25-06-2025
13	Máy khoan bàn CNC ZK4120 Máy mài: ZK4120-0002 Mã HD: CON20241114NO0005	500.000 đ	<span style="background-color: green;">Đang được thuê</span>	28-11-2024	28-06-2025
14	Máy mài mặt phẳng Perfect PFG-H2045 Máy mài: PFG-H2045-004 Mã HD: CON20241114NO0004	500.000 đ	<span style="background-color: green;">Đang được thuê</span>	28-11-2024	28-06-2025
15	Máy mài mặt phẳng Perfect PFG-H2045 Máy mài: PFG-H2045-003 Mã HD: CON20241114NO0003	500.000 đ	<span style="background-color: green;">Đã hoàn tất</span>	28-11-2024	15-11-2024

< 1 2 3 4 >

Figure 99. Cancel Contract Web screen 1: Cancel option

No.	Loại máy	Tiền thuê/Ngày	Trạng thái	Ngày bắt đầu	Ngày kết thúc
11	MÁY MÀI Phẳng CNC – TOYODA Máy mài: TOYODA-0001 Mã HD: CON20241115NO0002	100.000 đ	<span style="background-color: orange;">Đợi kiểm tra</span>	25-11-2024	20-11-2024
12	Máy mài tròn CNC Studer S33 Máy mài: Studer_S33_002 Mã HD: CON20241115NO0001	500.000 đ	<span style="background-color: green;">Đang được thuê</span>	25-11-2024	25-06-2025
13	Máy khoan bàn CNC ZK4120 Máy mài: ZK4120-0002 Mã HD: CON20241114NO0005	500.000 đ	<span style="background-color: green;">Đang được thuê</span>	28-11-2024	28-06-2025
14	Máy mài mặt phẳng Perfect PFG-H2045 Máy mài: PFG-H2045-004 Mã HD: CON20241114NO0004	500.000 đ	<span style="background-color: green;">Đã hoàn tất</span>	28-11-2024	28-06-2025
15	Máy mài mặt phẳng Perfect PFG-H2045 Máy mài: PFG-H2045-003 Mã HD: CON20241114NO0003	500.000 đ	<span style="background-color: green;">Đã hoàn tất</span>	28-11-2024	15-11-2024

< 1 2 3 4 >

Figure 100. Cancel Contract Web screen 2: Cancel modal

← Thông tin hợp đồng

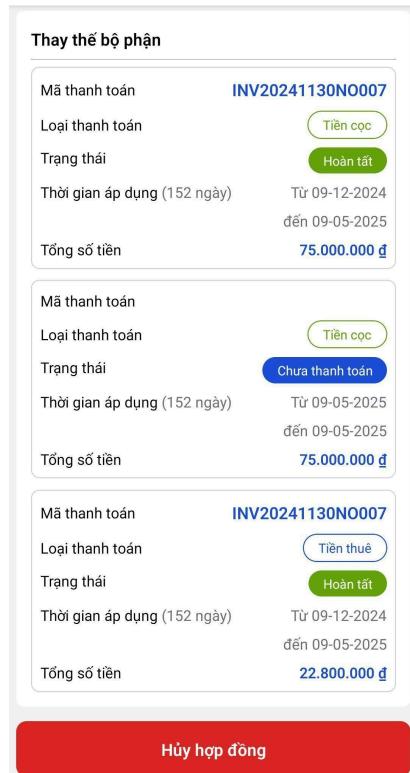


Figure 101. Cancel Contract Mobile screen 1: Cancel option

← Thông tin hợp đồng

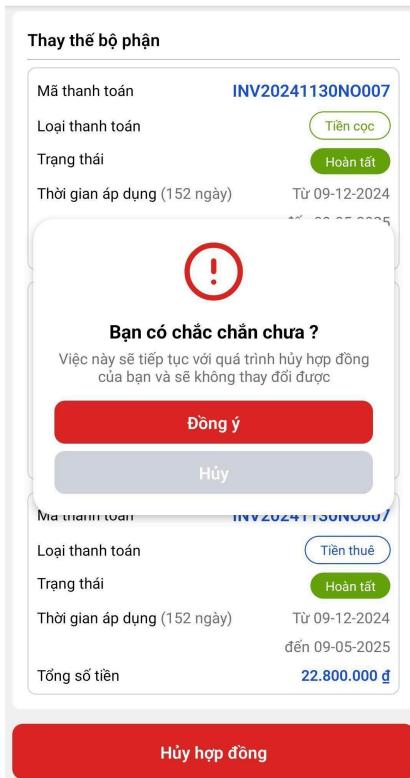


Figure 102. Cancel Contract Mobile screen 2: Cancel modal

← Thông tin hợp đồng



Figure 103. Cancel Contract Mobile screen 3: Cancel Success

- Function Detail:
  - Pre-condition:
    - Customer successfully logged into the system
    - Customer has a contract that is currently renting
  - Post condition:
    - Success: Customer successfully end the contract
    - Fail: System shows error toast message
  - Business rules: BR-28

### 3.2.8.9 View Contract Liquidation Report

- Function trigger: Manager clicks on “Xem báo cáo thanh lý” which data user choose.
- Function description:
  - Actors: Manager .
  - Purpose: User wants to view the liquidation report in the system.
- Screen layout:

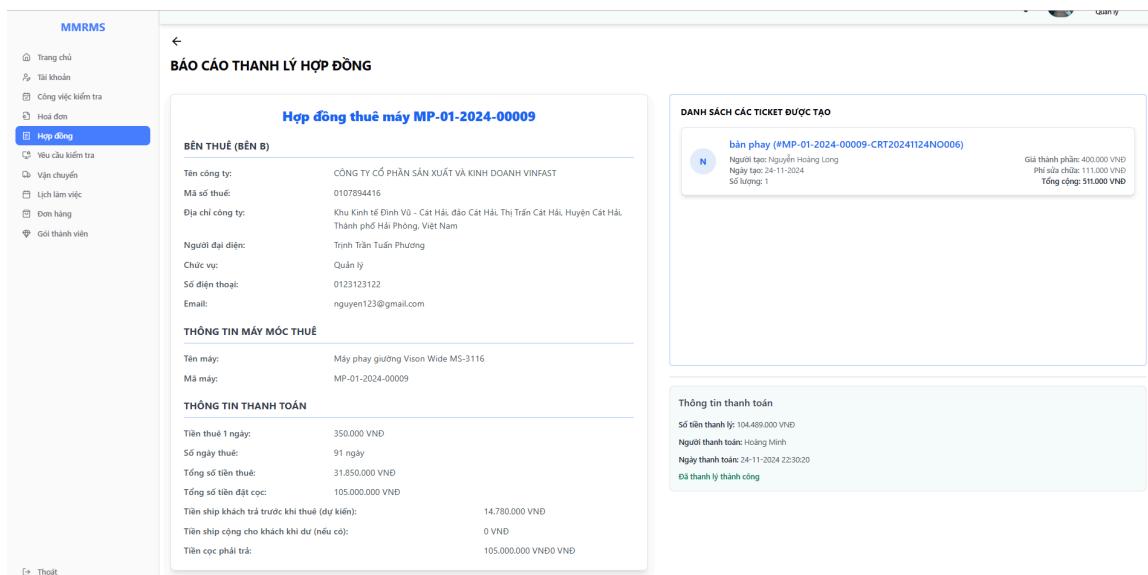


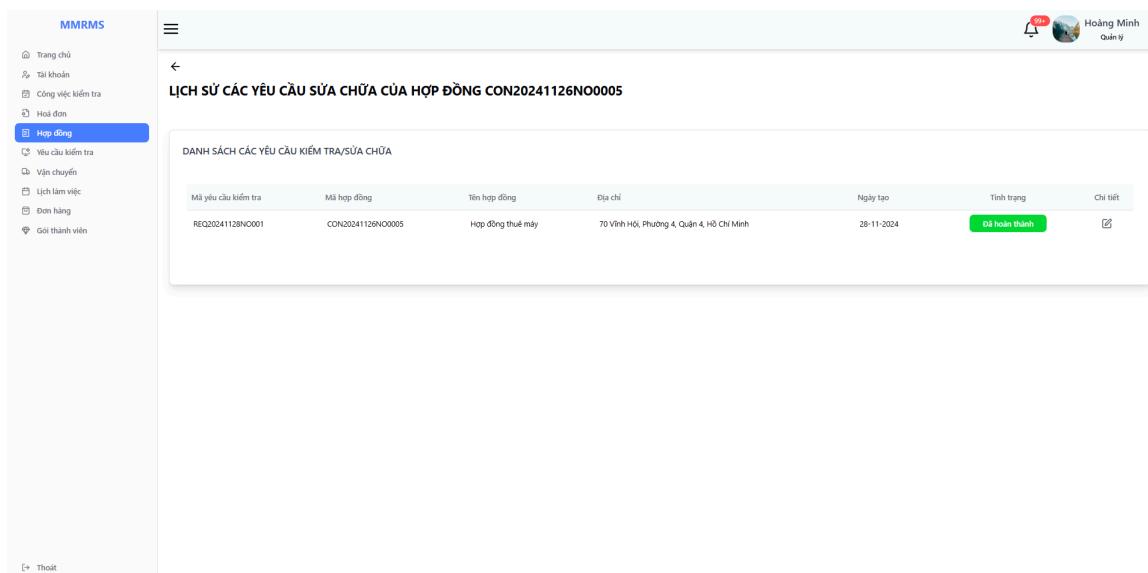
Figure 104. View Contract Liquidation Report screen

- Function Detail:

- Pre-condition:
  - Manager successfully logged into the system
  - Manager has a contract that is currently completed
  - Manager is at “Hợp đồng” screen
- Post condition:
  - Success: Manager successfully view contract liquidation report
  - Fail: System shows error toast message
- Business rules: BR-56

### 3.2.8.10 View History of Machine Checks

- Function trigger: Manager clicks on “Xem lịch sử kiểm tra” which data user choose.
- Function description:
  - Actors: Manager.
  - Purpose: Users want to view the history of machine checks in the system.
- Screen layout:



*Figure 105. View History of Machine Checks screen*

- Function Detail:
  - Pre-condition:
    - Manager successfully logged into the system
    - Manager has a contract that is currently renting process
    - Manager is at “Hợp đồng” screen
  - Post condition:
    - Success: Manager successfully view history of machine checks
    - Fail: System shows error toast message
  - Business rules: BR-57

### 3.2.8.10 View Contract Payment Reports

- Function trigger: Manager clicks on “Xem báo cáo thanh toán” which data user choose.
- Function description:
  - Actors: Manager .
  - Purpose: Users want to view contract payment reports in the system.
- Screen layout:

Nội dung	Số tiền thanh toán	Loại thanh toán	Ngày thanh toán	Ngày bắt đầu	Hạn thanh toán	Trạng thái
Thanh toán tiền đặt cọc cho hợp đồng CON20241126NO0005	150,000,000 VND	Tiền cọc	26-11-2024 17:22:37	04-12-2024 00:00:00	04-05-2025 00:00:00	<span style="background-color: green; color: white;">Đã thanh toán</span>
Hoàn trả tiền đặt cọc cho hợp đồng CON20241126NO0005	150,000,000 VND	Tiền trả cọc		Chưa thanh toán	04-05-2025 00:00:00	<span style="background-color: orange; color: black;">Đang chờ</span>
Thanh toán tiền thuê cho hợp đồng CON20241126NO0005	760,000,000 VND	Tiền thuê máy	26-11-2024 17:23:35	04-12-2024 00:00:00	04-05-2025 00:00:00	<span style="background-color: green; color: white;">Đã thanh toán</span>

*Figure 106. View Contract Payment Report screen*

- Function Detail:
  - Pre-condition:
    - Manager successfully logged into the system
    - Manager has a contract that is currently renting process
    - Manager is at “Hợp đồng” screen
  - Post condition:
    - Success: Manager successfully views contract payment reports.
    - Fail: System shows error toast message
  - Business rules: BR-57

### 3.2.9 Manage Request Check Machine

#### 3.2.9.1 View Request Check Machine List

- Function trigger: Manager clicks on “Yêu cầu kiểm tra” on sidebar in menu section.

- Function description:
  - Actors: Manager .
  - Purpose: User wants to view the request check machine list in the system.
- Screen layout:

Mã yêu cầu bảo trì	Mã hợp đồng	Tên hợp đồng	Địa chỉ	Ngày tạo	Tình trạng	Chi tiết
REQ20241120NO054	CON20241114N0005	Hợp đồng thuê máy	70 Vinh Hội, Phường 4, Quận 4, Hồ Chí Minh, Quận 4, Hồ Chí Minh	20-11-2024	Dang thực hiện	
REQ20241120NO053	CON20241115N0001	Hợp đồng thuê máy	70 Vinh Hội, Phường 4, Quận 4, Hồ Chí Minh, Quận 4, Hồ Chí Minh	20-11-2024	Chờ xử lý	
REQ20241120NO052	CON20241115N0002	Hợp đồng thuê máy	70 Vinh Hội, Phường 4, Quận 4, Hồ Chí Minh, Quận 4, Hồ Chí Minh	20-11-2024	Chờ xử lý	
REQ20241120NO051	CON20241115N0004	Hợp đồng thuê máy	70 Vinh Hội, Phường 4, Quận 4, Hồ Chí Minh, Quận 4, Hồ Chí Minh	20-11-2024	Chờ xử lý	
REQ20241120NO050	CON20241115N0004	Hợp đồng thuê máy	70 Vinh Hội, Phường 4, Quận 4, Hồ Chí Minh, Quận 4, Hồ Chí Minh	20-11-2024	Đã huỷ yêu cầu	
REQ20241120NO049	CON20241115N0004	Hợp đồng thuê máy	70 Vinh Hội, Phường 4, Quận 4, Hồ Chí Minh, Quận 4, Hồ Chí Minh	20-11-2024	Đã huỷ yêu cầu	
REQ20241120NO048	CON20241115N0002	Hợp đồng thuê máy	70 Vinh Hội, Phường 4, Quận 4, Hồ Chí Minh, Quận 4, Hồ Chí Minh	20-11-2024	Đã huỷ yêu cầu	
REQ20241120NO047	CON20241115N0004	Hợp đồng thuê máy	70 Vinh Hội, Phường 4, Quận 4, Hồ Chí Minh, Quận 4, Hồ Chí Minh	20-11-2024	Đã huỷ yêu cầu	
REQ20241120NO046	CON20241115N0004	Hợp đồng thuê máy	70 Vinh Hội, Phường 4, Quận 4, Hồ Chí Minh, Quận 4, Hồ Chí Minh	20-11-2024	Đã huỷ yêu cầu	
REQ20241120NO045	CON20241115N0001	Hợp đồng thuê máy	70 Vinh Hội, Phường 4, Quận 4, Hồ Chí Minh, Quận 4, Hồ Chí Minh	20-11-2024	Đã huỷ yêu cầu	

Figure 107. Request Checks Machine Management screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system manager account.
    - User has permissions to access the system.
  - Post condition:
    - Success: User can view the request check machine list in the system.
    - Fail: When load data with an error, the system will show an error toast.
  - Business rules: N/A.

### 3.2.9.2 View Request Check Machine Detail

- Function trigger: Manager clicks on “” with data the user has chosen.
- Function description:
  - Actors: Manager .
  - Purpose: Users want to view request check machine details in the system.
- Screen layout:

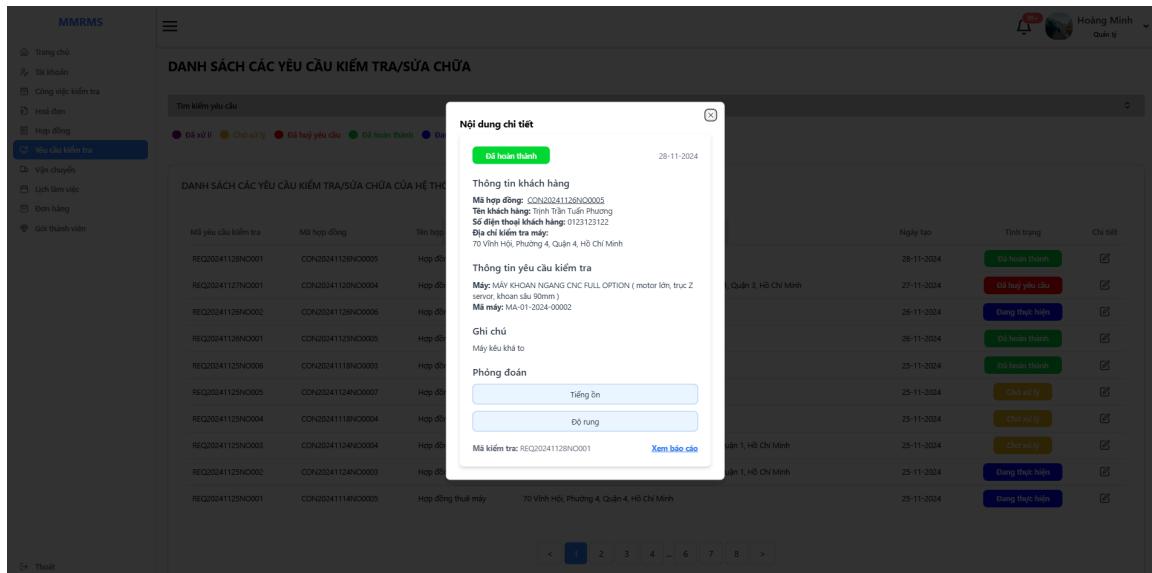


Figure 108. View Request Checks Machine Detail screen

- Function Detail:

- Pre-condition:
  - User is successfully logs into the system manager account.
  - User has permissions to access the system.
  - User is in “Yêu cầu kiểm tra” screen.
- Post condition:
  - Success: Users can view request check machine details in the system.
  - Fail: When load data with an error, the system will show an error toast.
- Business rules: N/A.

### 3.2.9.3 View Request Check Machine List (Customer Role)

- Function trigger: User clicks on “Yêu cầu sửa chữa” tab to navigate to Check Request page
- Function description:
  - Actors: Customer
  - Purpose: User wants to view the account request check machine list
- Screen layout:

No.	Mã đơn yêu cầu	Trạng thái	Mã máy	Ngày tạo	
1	REQ20241120N0054	Tiến hành	ZK4120-0002	20-11-2024	⋮
2	REQ20241120N0053	Bị hủy	Stuter\_S33\_002	20-11-2024	⋮
3	REQ20241120N0052	Mới	TOYODA-0001	20-11-2024	⋮
4	REQ20241120N0051	Mới	Stuter\_S33\_001	20-11-2024	⋮
5	REQ20241120N0050	Bị hủy	Stuter\_S33\_001	20-11-2024	⋮

 The bottom of the screen shows a navigation bar with pages 1 through 12 and a search bar."/>

Figure 109. View Request Checks Machine List Web screen

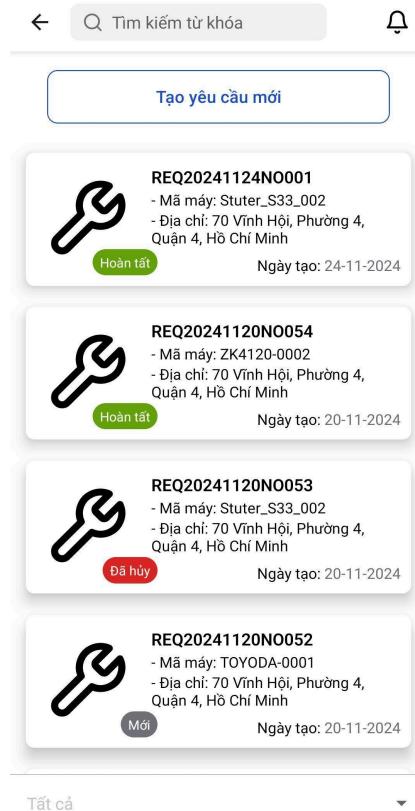


Figure 110. View Request Checks Machine List Mobile screen

- Function Detail:
  - Pre-condition:
    - Customer successfully logged into the system
  - Post condition:
    - Success: User can view the account request check machine list
    - Fail: System shows error toast message
  - Data:
    - CheckRequestId: text
    - SerialNumber: text
    - Status: text
    - DateCreate: text
  - Business rules: N/A

### 3.2.9.4 View Request Check Machine Detail (Customer Role)

- Function trigger: User choose a request that they want to see its detail
- Function description:
  - Actors: Customer
  - Purpose: User wants to view the request check machine detail
- Screen layout:

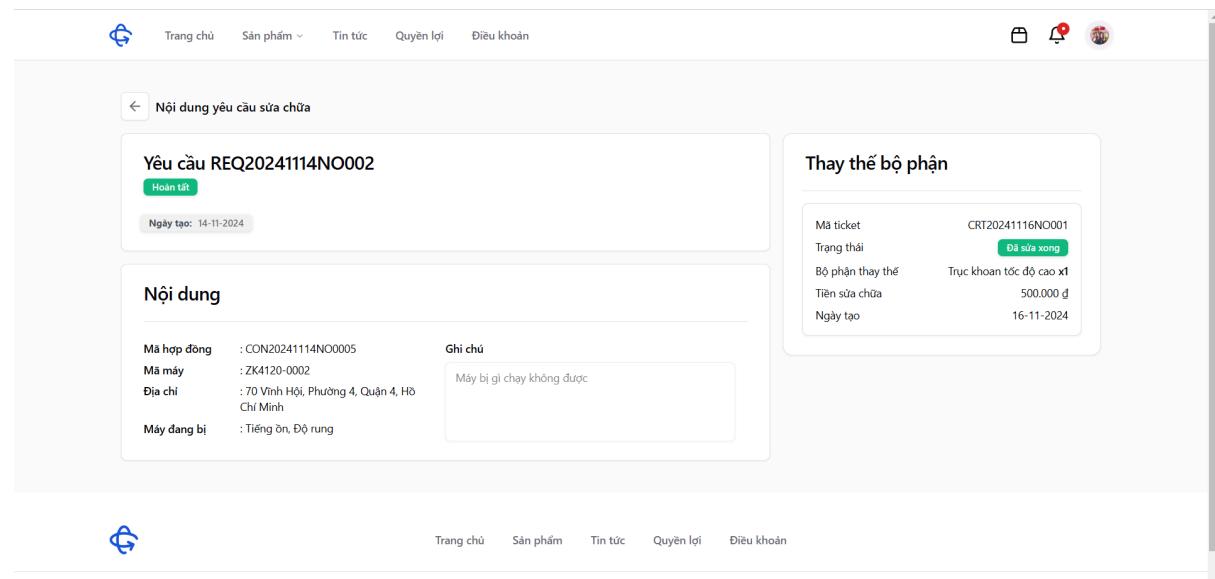


Figure 111. View Request Checks Machine Detail screen

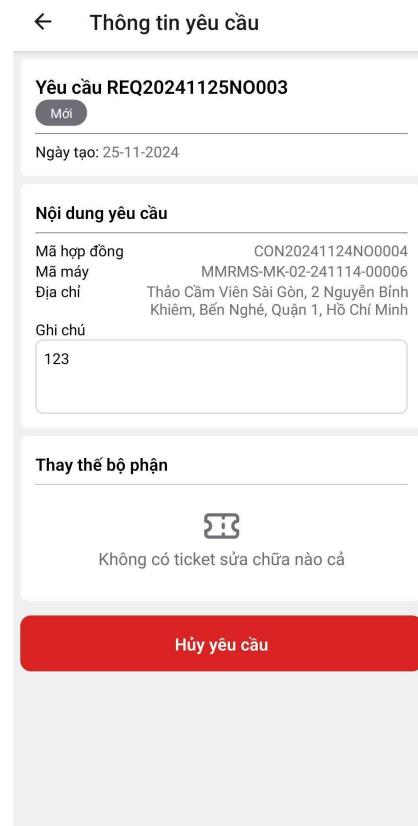


Figure 112. View Request Checks Machine Detail Mobile screen

- Function Detail:
  - Pre-condition:
    - Customer successfully logged into the system
  - Post condition:
    - Success: User can view the request check machine detail
    - Fail: System shows error toast message
  - Data:
    - CheckRequestId: text

- DateCreate: text
- SerialNumber: text
- ContractId: text
- Address: text
- CriteriaList: text[]
- Note: text
- TicketList:
  - TicketId: text
  - Status: text
  - Component: text
  - Quantity: number
  - TotalPrice: number
  - DateCreate: text
- Business rules: N/A

### 3.2.9.5 Create Request Check Machine

- Function trigger: User clicks on the “Tạo yêu cầu” button
- Function description:
  - Actors: Customer
  - Purpose: User wants to create a new request check machine
- Screen layout:

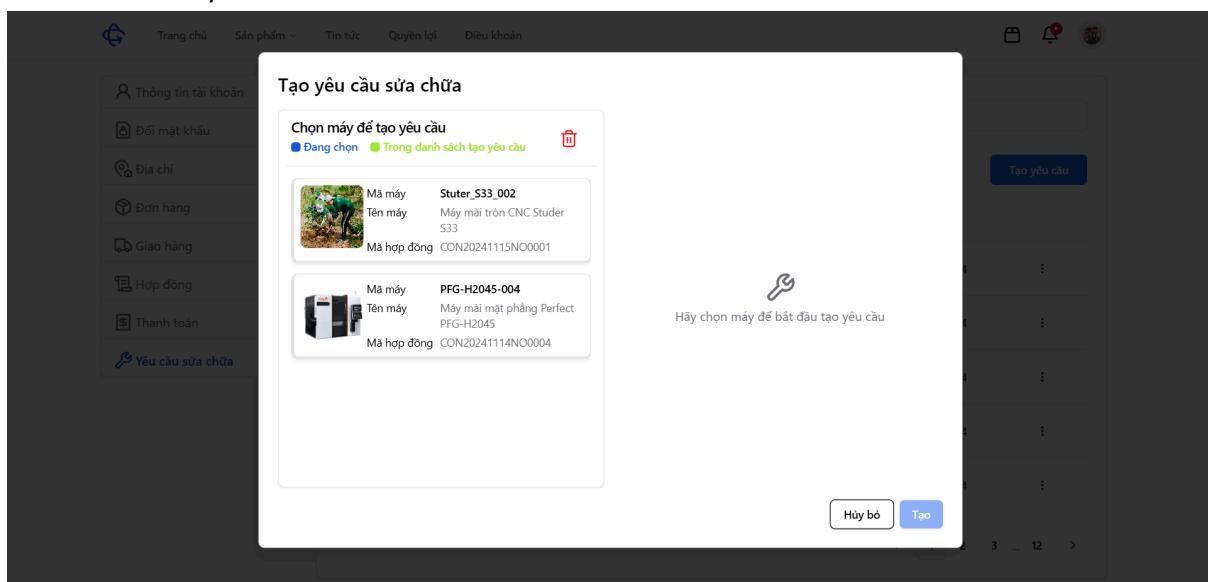


Figure 113. Create Check Request Machine Web screen 1: Choose contract

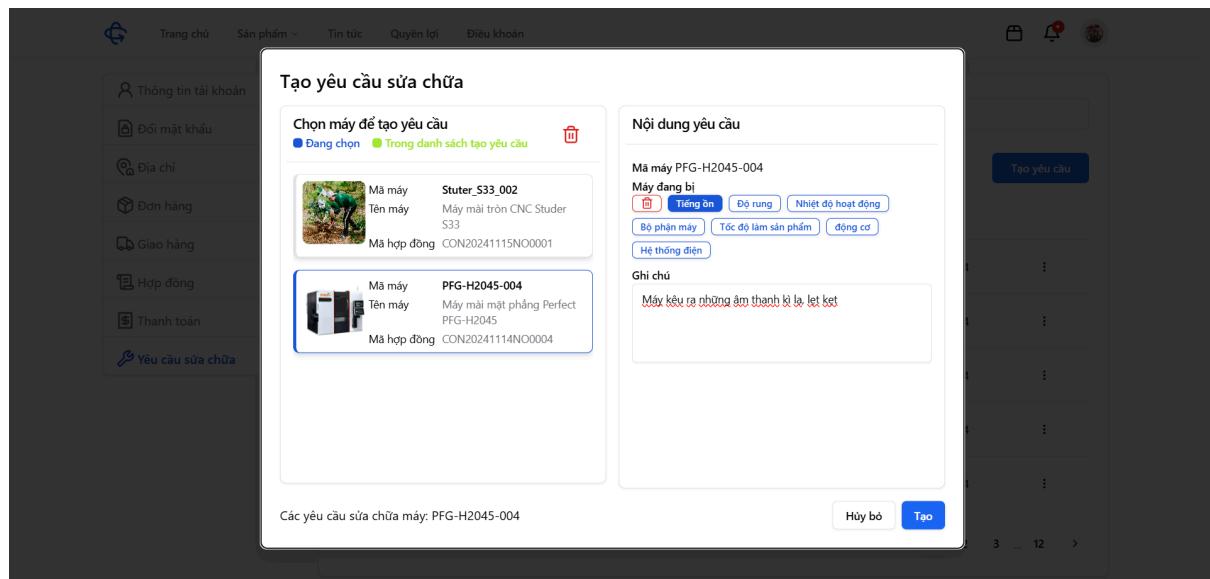
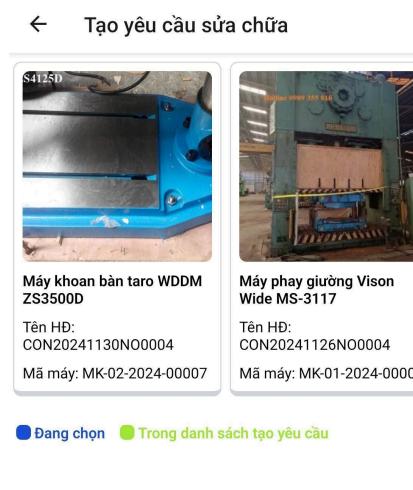


Figure 114. Create Check Request Machine Web screen 2: Choose and input problem



Hãy chọn 1 máy để bắt đầu tạo yêu cầu sửa chữa



Tạo yêu cầu sửa chữa

Figure 115. Create Check Request Machine Mobile screen 1: Choose contract

← Tạo yêu cầu sửa chữa



Figure 116. Create Check Request Machine Mobile screen 2: Choose and input problem

- Function Detail:
  - Pre-condition:
    - Customer successfully logged into the system
    - Customer already have contracts that are currently renting
    - Chosen contract must not currently have a processing request check machine
  - Post condition:
    - Success: User successfully create a new request check machine
    - Fail: System shows error toast message
  - Data:
    - ContractList:
      - SerialNumber: text
      - MachineName: text
      - ContractId: text
    - CriteriaList:
      - CriteriaName: text
    - Note: text
  - Business rules: BR-32, BR-33

### 3.2.9.6 Cancel Request Check Machine

- Function trigger: User clicks on “⋮” button, then clicks on “Hủy yêu cầu” button
- Function description:
  - Actors: Customer
  - Purpose: User wants to cancel a request check machine
- Screen layout:

No.	Mã đơn yêu cầu	Trạng thái	Mã máy	Ngày tạo	
1	REQ20241120NO054	Tiến hành	ZK4120-0002	20-11-2024	<span>⋮</span>
2	REQ20241120NO053	Đã hủy	Stuter_S33_002	20-11-2024	<span>⋮</span>
3	REQ20241120NO052	Mới	TOYODA-0001	20-11-2024	<span>⋮</span>
4	REQ20241120NO051	Mới	Stuter_S33_001	20-11-2024	<span>⋮</span>
5	REQ20241120NO050	Đã hủy	Stuter_S33_001	20-11-2024	<span>⋮</span>

Figure 117. Cancel Request Check Machine Web screen 1: Cancel option

Figure 118. Cancel Request Check Machine Web screen 2: Cancel modal

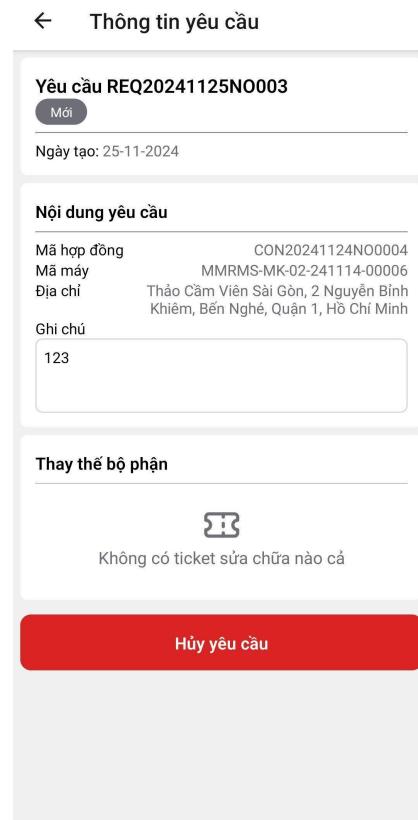


Figure 119. Cancel Request Check Machine Mobile screen 1: Cancel option

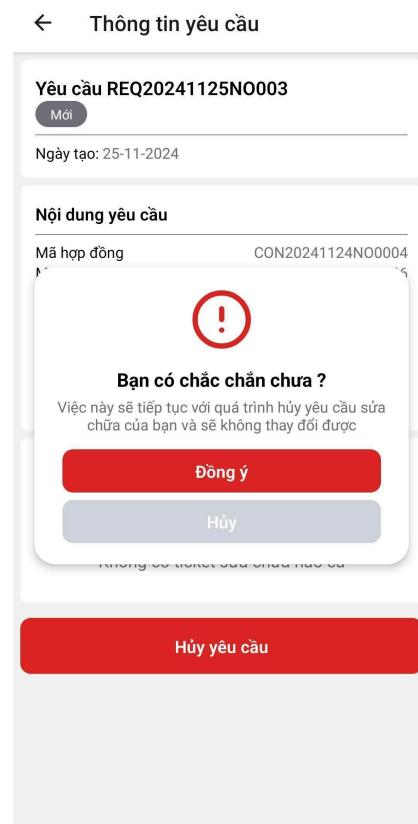
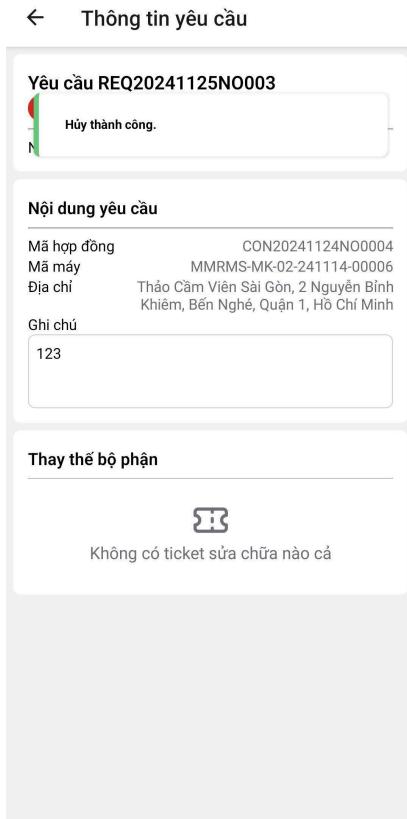


Figure 120. Cancel Request Check Machine Mobile screen 2: Cancel modal



*Figure 121. Cancel Request Check Machine Mobile screen 3: Cancel success*

- Function Detail:
  - Pre-condition:
    - Customer successfully logged into the system
    - Request check machine status must be “Mới”
  - Post condition:
    - Success: User successfully cancel the request check machine
    - Fail: System shows error toast message
  - Business rules: BR-34

### 3.2.10 Manage Request Renting

#### 3.2.10.1 View Request Renting List

- Function trigger: Manager clicks on “Đơn hàng” on the sidebar in the menu section.
- Function description:
  - Actors: Manager .
  - Purpose: User wants to view the request renting list in the system.
- Screen layout:

The screenshot shows a web-based application interface for managing rental requests. The left sidebar contains a navigation menu with items like Trang chủ, Nhân viên, Công việc kiểm tra, Hoá đơn, Hợp đồng, Yêu cầu kiểm tra, Văn chuyển, Đơn hàng, and Gói thành viên. The 'Đơn hàng' item is highlighted. The main content area has a search bar at the top. Below it is a section titled 'DANH SÁCH CÁC YÊU CẦU' (List of Requests) with a 'Tim kiếm yêu cầu' (Search request) input field. There are four status buttons: Đã ký (Signed), Đã vận chuyển (Shipped), Đang xử lý (Processing), and Đã huỷ (Cancelled). A table lists nine rental requests with columns: Mã yêu cầu (Request ID), Tên (Name), Ngày tạo (Created Date), Trạng thái (Status), and Hành động (Actions). The requests are as follows:

Mã yêu cầu	Tên	Ngày tạo	Trạng thái	Hành động
REH20241120NO003	Trần Anh Lâm	20-11-2024	Đang xử lý	<input checked="" type="checkbox"/>
REH20241120NO002	Trần Anh Lâm	20-11-2024	Đã huỷ	<input checked="" type="checkbox"/>
REH20241120NO001	Trần Anh Lâm	20-11-2024	Đã huỷ	<input checked="" type="checkbox"/>
REH20241119NO004	Trịnh Trần Tuấn Phương	19-11-2024	Đang xử lý	<input checked="" type="checkbox"/>
REH20241119NO003	Trần Anh Lâm	19-11-2024	Đang xử lý	<input checked="" type="checkbox"/>
REH20241119NO002	Trịnh Trần Tuấn Phương	19-11-2024	Đã ký	<input checked="" type="checkbox"/>
REH20241119NO001	Đặng Khoa	19-11-2024	Đã huỷ	<input checked="" type="checkbox"/>
REH20241118NO003	Trịnh Trần Tuấn Phương	18-11-2024	Đã vận chuyển	<input checked="" type="checkbox"/>
REH20241118NO002	Trịnh Trần Tuấn Phương	18-11-2024	Đã vận chuyển	<input checked="" type="checkbox"/>

Figure 122. Request Renting Management screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system manager account.
    - User has permissions to access the system.
  - Post condition:
    - Success: User can view the request check machine list in the system.
    - Fail: When load data with an error, the system will show an error toast.
  - Business rules: N/A.

### 3.2.10.2 View Request Renting Detail

- Function trigger: Manager clicks on “” with data the user has chosen.
- Function description:
  - Actors: Manager .
  - Purpose: Users want to view request renting details in the system.
- Screen layout:

The screenshot shows a detailed view of a rental request. The left sidebar is identical to the previous screen. The main content area has a search bar at the top. Below it is a section titled 'YÊU CẦU CHI TIẾT' (Request Detail) with a back arrow. It displays the request ID 'Mã yêu cầu: REH20241120NO003' and the creation date '20-11-2024'. The detail view includes the following information:

- Người đại diện: Trần Anh Lâm
- Công ty thuê: CÔNG TY TNHH HÀO HÂN LOGISTICS
- Địa chỉ công ty: Số 56, Đường Số 19, Phường Hiệp Bình Phước, Quận Thủ Đức, Thành phố Hồ Chí Minh, Việt Nam
- Tổng phí dịch vụ: 800.000 VND
- Tổng giá thuê: 199.802.800 VND
- Phương thức thanh toán: Thanh toán một lần
- Ghi chú: Không có
- Các dịch vụ mà khách hàng mong muốn:
  - Lắp đặt máy móc: 100.000 VNĐ
  - Vệ sinh máy móc: 100.000 VNĐ
  - Bảo hiểm máy móc: 200.000 VNĐ
- Đã ký thành công:
- Chưa thực hiện ký:
- Từ chối hợp đồng:
- Hủy hợp đồng:

At the bottom, it shows the contract number 'Mã hợp đồng: CON20241120NO003', the machine model 'Máy trùi Mài mài mặt phẳng Perfect PFG-H2045-003', and the contract period 'Ngày bắt đầu hợp đồng: 28-11-2024' and 'Ngày hết hạn hợp đồng: 28-05-2025'. There is also a link 'Hiện tại khách hàng chưa kí'.

Figure 123. View Request Renting Detail screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system manager account.
    - User has permissions to access the system.
    - User is in “Đơn hàng” screen.
  - Post condition:
    - Success: User can view the request renting list in the system.
    - Fail: When load data with an error, the system will show an error toast.
  - Business rules: N/A.

### 3.2.10.3 View Request Renting List (Customer Role)

- Function trigger: User clicks on “Đơn hàng” tab to navigate to rent request page
- Function description:
  - Actors: Customer
  - Purpose: User wants to view the account request renting list
- Screen layout:

No.	Mã đơn hàng	Tổng tiền thuê	Ngày tạo	Loại thanh toán	Trạng thái
1	REH20241121NO003	91.200.000 đ	21-11-2024	<span>Theo tháng</span>	<span>Chưa trả cọc</span>
2	REH20241121NO002	72.600.000 đ	21-11-2024	<span>Theo tháng</span>	<span>Đã hủy</span>
3	REH20241121NO001	91.200.000 đ	21-11-2024	<span>Trả 1 lần</span>	<span>Đã hủy</span>
4	REH20241120NO004	55.800.000 đ	20-11-2024	<span>Theo tháng</span>	<span>Đã hủy</span>
5	REH20241120NO003	137.500.000 đ	20-11-2024	<span>Trả 1 lần</span>	<span>Bđ ký</span>

Figure 124. View Request Renting List Web screen

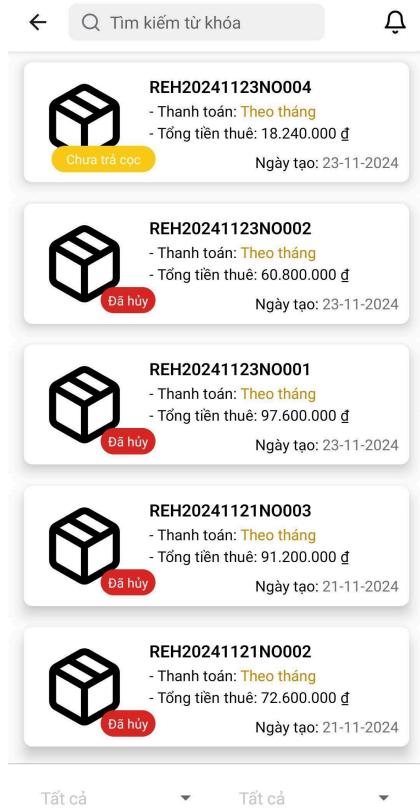


Figure 125. View Renting Request List Mobile screen

- Function Detail:
  - Pre-condition:
    - Customer successfully logged into the system
  - Post condition:
    - Success: User can view the account request renting list
    - Fail: System shows error toast message
  - Data:
    - RentingRequestId: text
    - TotalAmount: number
    - Status: text
    - DateCreate: text
    - PayType: text
  - Business rules: N/A

#### 3.2.10.4 View Request Renting Detail (Customer Role)

- Function trigger: User choose a request that they want to see its detail
- Function description:
  - Actors: Customer
  - Purpose: User wants to view the request renting detail
- Screen layout:

The screenshot displays a web-based application interface for managing rental requests. At the top, there's a navigation bar with links for 'Trang chủ', 'Sản phẩm', 'Tin tức', 'Quyền lợi', and 'Điều khoản'. On the right side of the header are icons for search, refresh, and user profile.

The main content area is titled 'Nội dung đơn hàng' (Order Content). It shows a summary of a rental request:

- Đơn hàng REH20241121NO003**
- Tài liệu**: Chưa trả cọc
- Ngày bắt đầu**: 29-11-2024 | **Ngày tạo**: 2024-11-21T15:18:29.237057Z | **Trả tiền**: Theo tháng

The page is divided into several sections:

- Khách hàng** (Customer): Displays contact information for the customer.
- Thông tin ngân hàng** (Bank Information): Shows bank account details and the bank name.
- Địa chỉ** (Address): Provides the address of the customer.
- Dịch vụ thuê** (Rental Services): A table listing services, their descriptions, and prices.
- Máy móc** (Machinery): A section showing the rented machinery.
- Thông tin thanh toán** (Payment Information): Details about the payment method and amount.

Figure 126. View Request Renting Detail Web screen

This screenshot shows a mobile view of the same rental request detail. The top part is identical to Figure 126, displaying the order number, status, and creation date.

The main content area is titled 'Thông tin yêu cầu thuê' (Rental Request Information) and shows:

- Yêu cầu thuê REH20241130NO003**
- Chưa trả cọc**
- Ngày tạo**: 30-11-2024 | **Ngày bắt đầu**: 11-12-2024 | **Trả tiền**: 1 lần

The mobile view includes the following sections:

- Khách hàng** (Customer): Customer details.
- Thông tin ngân hàng** (Bank Information): Bank account details.
- Máy móc** (Machinery): A detailed view of the rented machine, including its model, serial number, and rental period.

Figure 127. View Renting Request Detail Mobile screen

- Function Detail:
  - Pre-condition:
    - Customer successfully logged into the system
  - Post condition:
    - Success: User can view the request renting detail
    - Fail: System shows error toast message
  - Data:

- RentingRequestId: text
- DateStart: text
- DateCreate: text
- PayType: text
- ShipPrice: number
- TotalServicePrice: number
- DepositPrice: number
- TotalPrice: number
- CustomerInfo:
  - Name: text
  - Phone: text
  - Company: text
  - Email: text
  - Address: text
- CardInfo:
  - CardNumber: text
  - BankName: text
  - CardOwner: text
- ServiceList:
  - ServiceName: text
  - ServicePrice: number
- ContractList:
  - Image: text
  - MachineName: text
  - SerialNumber: text
  - RentPrice: number
  - Status: text
  - DateStart: text
  - DateEnd: text
- Business rules: N/A

### 3.2.10.5 Cancel Request Renting

- Function trigger: User clicks on “⋮” button, then clicks on “Hủy đơn hàng” button
- Function description:
  - Actors: Customer
  - Purpose: User wants to cancel a request renting machine
- Screen layout:

No.	Mã đơn hàng	Tổng tiền thuê	Ngày tạo	Loại thanh toán	Trạng thái
1	REH20241121NO003	91.200.000 đ	21-11-2024	Theo tháng	<span>Chưa trả cọc</span>
2	REH20241121NO002	72.600.000 đ	21-11-2024	Theo tháng	<span>Đã hủy</span>
3	REH20241121NO001	91.200.000 đ	21-11-2024	Trả 1 lần	<span>Đã hủy</span>
4	REH20241120NO004	55.800.000 đ	20-11-2024	Theo tháng	<span>Đã hủy</span>
5	REH20241120NO003	137.500.000 đ	20-11-2024	Trả 1 lần	<span>Đã ký</span>

Figure 128. Cancel Request Renting Web screen 1: Cancel option

Bạn có chắc ko?

Việc hủy bỏ đơn hàng sẽ không thể nào quay lại được

Hủy Tiếp tục

Figure 129. Cancel Request Renting Web screen 2: Cancel modal

[← Thông tin yêu cầu thuê](#)



Máy khoan bàn taro WDDM ZS3500D  
Mã máy: MK-02-2024-00003  
Mã HD: CON20241130N00007  
Ngày bắt đầu: 11-12-2024  
Ngày kết thúc: 11-06-2025  
**238.000 ₫/ngày**



Máy khoan bàn taro WDDM ZS3500D  
Mã máy: MK-02-2024-00002  
Mã HD: CON20241130N00008  
Ngày bắt đầu: 11-12-2024  
Ngày kết thúc: 11-06-2025  
**238.000 ₫/ngày**

STT	Tên dịch vụ	Bảng giá
1	Lắp đặt máy móc	100.000 ₫
2	Vệ sinh máy móc	100.000 ₫
3	Bảo hiểm máy móc	200.000 ₫

Thông tin thanh toán	
Phí vận chuyển	1.330.200 ₫
Phí dịch vụ	800.000 ₫
Tiền cọc	150.000.000 ₫
Tiền thuê	87.108.000 ₫
<b>Tiền thuê</b>	<b>239.119.200 ₫</b>

**Hủy yêu cầu thuê**

Figure 130. Cancel Request Renting Mobile screen 1: Cancel option

← Thông tin yêu cầu thuê

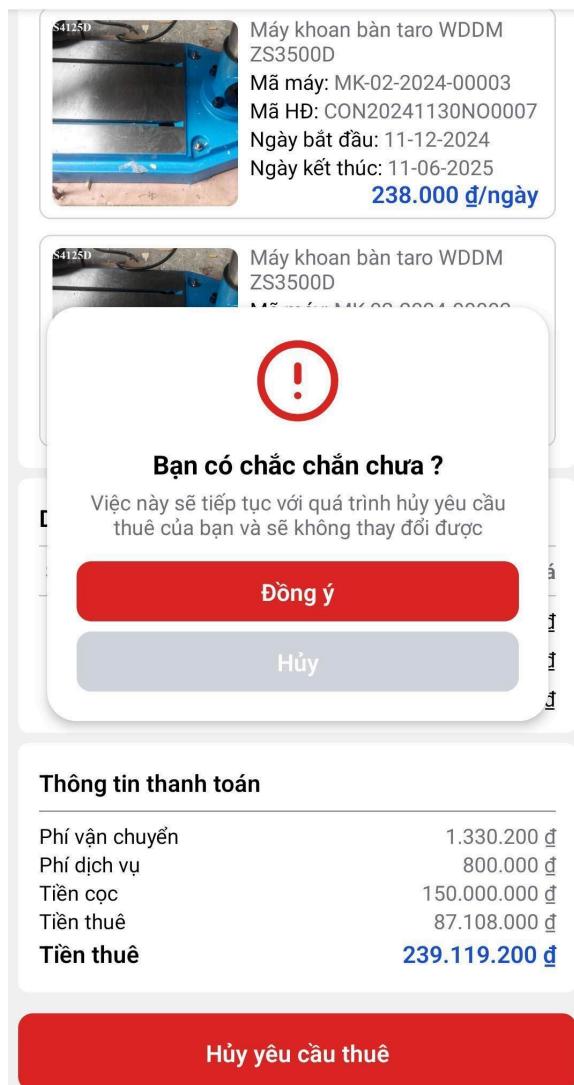


Figure 131. Cancel Request Renting Mobile screen 2: Cancel modal

- Function Detail:
  - Pre-condition:
    - Customer successfully logged into the system
    - Request renting machine status must be “Chưa trả cọc”
  - Post condition:
    - Success: User successfully cancel the request renting machine
    - Fail: System shows error toast message
  - Business rules: N/A

### 3.2.10.6 Create Request Renting



- Function trigger: User clicks on “ ” button at the top navigation bar
- Function description:
  - Actors: Customer
  - Purpose: User wants to create a new renting request
- Screen layout:

**Giỏ hàng**  
Có 1 máy trong giỏ hàng

Sản phẩm	Giá thuê/ngày
Máy khoan bàn taro WDDM ZS4125D	400.000 đ

**Chọn thời gian thuê**

Thời gian thuê \*  
Chọn thời gian thuê

Ngày giao hàng \*  
Chọn ngày giao

Trang chủ Sản phẩm Tin tức Quyền lợi Điều khoản

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Figure 132. Create Request Renting screen 1: Choose duration

**Giỏ hàng**  
Có 1 máy trong giỏ hàng

Sản phẩm	Thời gian thuê	Giá thuê/ngày
Máy khoan bàn taro WDDM ZS4125D Hiện tại có: 3 máy		
<input type="checkbox"/> ZS4125D-003		400.000 đ
<input type="checkbox"/> ZS4125D-002		400.000 đ
<input type="checkbox"/> ZS4125D-001		400.000 đ

**Chọn thời gian thuê**

Thời gian thuê \*  
4 tháng

Ngày giao hàng \*  
ngày 29 tháng 11 năm 2024

**Địa chỉ giao hàng**

Địa chỉ \*  
Chọn địa chỉ

Hiện đang chưa gán địa chỉ giao hàng

**Thông tin ngân hàng**

Figure 133. Create Request Renting screen 2: Choose serial numbers

The screenshot shows a web-based application interface for creating a request for renting. At the top, there is a navigation bar with links: Trang chủ, Sản phẩm, Tin tức, Quyền lợi, and Điều khoản. On the right side of the header, there are icons for a user profile, a search bar, and other system functions.

The main content area is divided into two sections:

- Thông tin ngân hàng** (Bank Information):
 

Số tài khoản *	<input type="text"/>
Tên ngân hàng *	<input type="text"/>
Tên người nhận *	<input type="text"/>
- Chọn các dịch vụ thuê** (Select services):
 

Dịch vụ	Bảng giá
<input checked="" type="checkbox"/> Lắp đặt máy móc *	100.000 đ
<input checked="" type="checkbox"/> Vệ sinh máy móc *	100.000 đ
<input type="checkbox"/> Đào tạo và hướng dẫn sử dụng	200.000 đ
<input checked="" type="checkbox"/> Bảo hiểm máy móc *	200.000 đ
<input type="checkbox"/> Bảo vệ máy móc	100.000 đ

Figure 134. Create Request Renting screen 3: Input bank information

This screenshot shows the continuation of the service selection process. The top navigation and header icons are identical to Figure 134.

The main content area features a single section:

- Chọn các dịch vụ thuê** (Select services):
 

Dịch vụ	Bảng giá
<input checked="" type="checkbox"/> Lắp đặt máy móc *	100.000 đ
<input checked="" type="checkbox"/> Vệ sinh máy móc *	100.000 đ
<input type="checkbox"/> Đào tạo và hướng dẫn sử dụng	200.000 đ
<input checked="" type="checkbox"/> Bảo hiểm máy móc *	200.000 đ
<input type="checkbox"/> Bảo vệ máy móc	100.000 đ

Below the table, a note in parentheses states: (\*) : Các dịch vụ này bắt buộc phải có. A blue button labeled "Tiếp theo" (Next) is located at the bottom right of the service selection panel.

Figure 135. Create Request Renting screen 4: Choose services

**Máy móc đơn hàng**

No.	Loại máy	Ngày kết thúc	Thời gian thuê	Giá giao hàng/km	Giá thuê/ngày
1	Máy khoan bàn taro WDDM ZS4125D Mã máy: ZS4125D-003	29-03-2025	4 tháng	50.000 đ	400.000 đ

**Dịch vụ đơn hàng**

No.	Loại dịch vụ	Bảng giá
1	Lắp đặt máy móc	100.000 đ
2	Vệ sinh máy móc	100.000 đ
4	Bảo hiểm máy móc	200.000 đ

Figure 136. Create Request Renting screen 5: Confirm request

**Xem trước nội dung hợp đồng**

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM  
Độc lập - Tự do - Hạnh phúc  
--- 000 ---

**HỢP ĐỒNG**  
(V/v: Thuê máy móc, thiết bị)

Căn cứ Bộ luật Dân sự số 91/2015/QH11 số 33/2005/QH11, ngày 14/06/2005;  
Căn cứ Luật Thương Mại số 36/2005/QH11, ngày 14/06/2005;  
Căn cứ Thông tư số 45/2013/TT-BTC của Bộ Tài Chính về "Hướng dẫn chế độ quản lý, sử dụng và trích khấu hao máy móc, thiết bị cố định";  
Căn cứ các văn bản luật hướng dẫn thi hành;  
Căn cứ chức năng, nhiệm vụ, nhu cầu và khả năng thực hiện của hai bên.  
Hôm nay, ngày..... tháng.....năm....., chúng tôi gồm có:

**BÊN A - BÊN THUÊ:**  
Đại diện: Nguyễn Anh Lâm  
Chức vụ: Quản lý

**Tạo đơn**

Figure 137. Create Request Renting screen 6: Preview contract

- Function Detail:
  - Pre-condition:
    - Customer successfully logged into the system
    - Customer must add at least 1 machine to order
  - Post condition:
    - Success: User successfully create the request renting machine
    - Fail: System shows error toast message
  - Data:
    - MachineList:
      - MachineName: text
      - RentDuration: number
      - RentPrice: number
      - SerialNumber: text
      - ShipPrice: number

- DateStart: number
- TotalRentDuration: number
- Address: text
- CardInfo:
  - CardNumber: text
  - BankName: text
  - CardOwner: text
- ServiceList:
  - ServiceName: text
  - ServicePrice: number
  - isOptional: boolean
- ShipPrice: number
- DepositPrice: number
- TotalServicePrice: number
- TotalRentPrice: number
- TotalDiscount: number
- isOneTimePayment: boolean
- Business rules: N/A

### 3.2.11 Manage Machine Task

#### 3.2.11.1 View Machine Task List

- Function trigger: Manager clicks on “Công việc kiểm tra” on sidebar in menu section.
- Function description:
  - Actors: Manager.
  - Purpose: User wants to view the machine task list in the system.
- Screen layout:

DANH SÁCH CÔNG VIỆC			
Tìm kiếm công việc	Trạng thái	+ Lọc trạng thái	Nhân viên
<input checked="" type="radio"/> Đã thực hiện	<input type="radio"/> Chưa thực hiện công việc	<input checked="" type="radio"/> Dang thực hiện	
Công việc kiểm tra máy MT10 - KIỂM TRA MÁY THUẾ THEO YÊU CẦU REQ20241120N0054			
		Nhân viên thực hiện Võ Đức Nguyễn	Ngày giao công việc 26-11-2024
Công việc kiểm tra máy MT9 - KIỂM TRA MÁY THUẾ THEO YÊU CẦU REQ20241119N0001			
		Nhân viên thực hiện Võ Đức Nguyễn	Ngày giao công việc 29-11-2024
Kiểm tra thanh lý MT8 - SỬA CHỮA MÁY HẾT HẠN HỢP ĐỒNG CON20241114N00001			
		Nhân viên thực hiện Võ Đức Nguyễn	Ngày giao công việc 27-11-2024

Figure 138. Machine Tasks Management screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system manager account.
    - User has permissions to access the system.
  - Post condition:

- Success: User can view the machine task list in the system.
- Fail: When load data with an error, the system will show an error toast.
- Business rules: N/A.

### 3.2.11.2 View Machine Task Detail

- Function trigger: Manager clicks on “Xem” which data the user has chosen.
- Function description:
  - Actors: Manager.
  - Purpose: Users want to view machine task detail in the system.
- Screen layout:

The screenshot displays the 'View Machine Task Detail' screen. On the left is a sidebar with navigation links: Trang chủ, Tài khoản, Công việc kiểm tra (highlighted in blue), Hoá đơn, Hợp đồng, Vấn đề, Lịch làm việc, Đơn hàng, and Gói thành viên. The main content area is divided into several sections:

- Thông tin công việc:** MT24 - Kiểm tra máy khoan theo yêu cầu REQ20241128NO001. Includes fields: Người giao: Hoàng Minh; Ngày tạo công việc: 28-11-2024; Ngày hoàn thành: 28-11-2024.
- Thông tin khách hàng:** Tên khách hàng: Trịnh Trần Tuấn Phương; Số điện thoại: 0123123122; Mã hợp đồng: CON20241128NO0005; Mã máy: MA-01-2024-00002; Máy: MÁY KHOAN NGANG CNC FULL OPTION ( motor lớn, trục Z servor, khoan sâu 90mm ); Địa chỉ: 70 Vinh Hội, Phường 4, Quận 4, Hồ Chí Minh; Loại máy: Máy bão; Nội dung: Không có.
- Chi tiết bổ sung:** Ghi chú: Kiểm tra máy cho khách; Phòng đoán: Tiếng ồn, Độ rung.
- TICKET KIỂM TRA:** A table showing ticket details: Mã Ticket: CRT20241128NO001; Tên Nhân Viên Tạo: Đinh Hoàng Thái; Ghi Chú: Thay thế thành phần Đầu mài với số lượng là 1; Ngày Tạo Ticket: 28-11-2024; Trạng thái: Đã hoàn thành.

Figure 139. Machine Task Detail screen

This screenshot shows another instance of the 'View Machine Task Detail' screen. The sidebar and sections are identical to Figure 139, but the ticket table data is different:

Mã Ticket	Tên Nhân Viên Tạo	Ghi Chú	Ngày Tạo Ticket	Trạng thái
CRT20241128NO001	Đinh Hoàng Thái	Thay thế thành phần Đầu mài với số lượng là 1	28-11-2024	Đã hoàn thành

Figure 140. Machine Task Detail screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system manager account.
    - User has permissions to access the system.
    - User is in “Công việc kiểm tra” screen.
  - Post condition:

- Success: User can view machine task details in the system.
- Fail: When load data with an error, the system will show an error toast.
- Business rules: N/A.

### 3.2.11.3 View Ticket Machine Task Detail

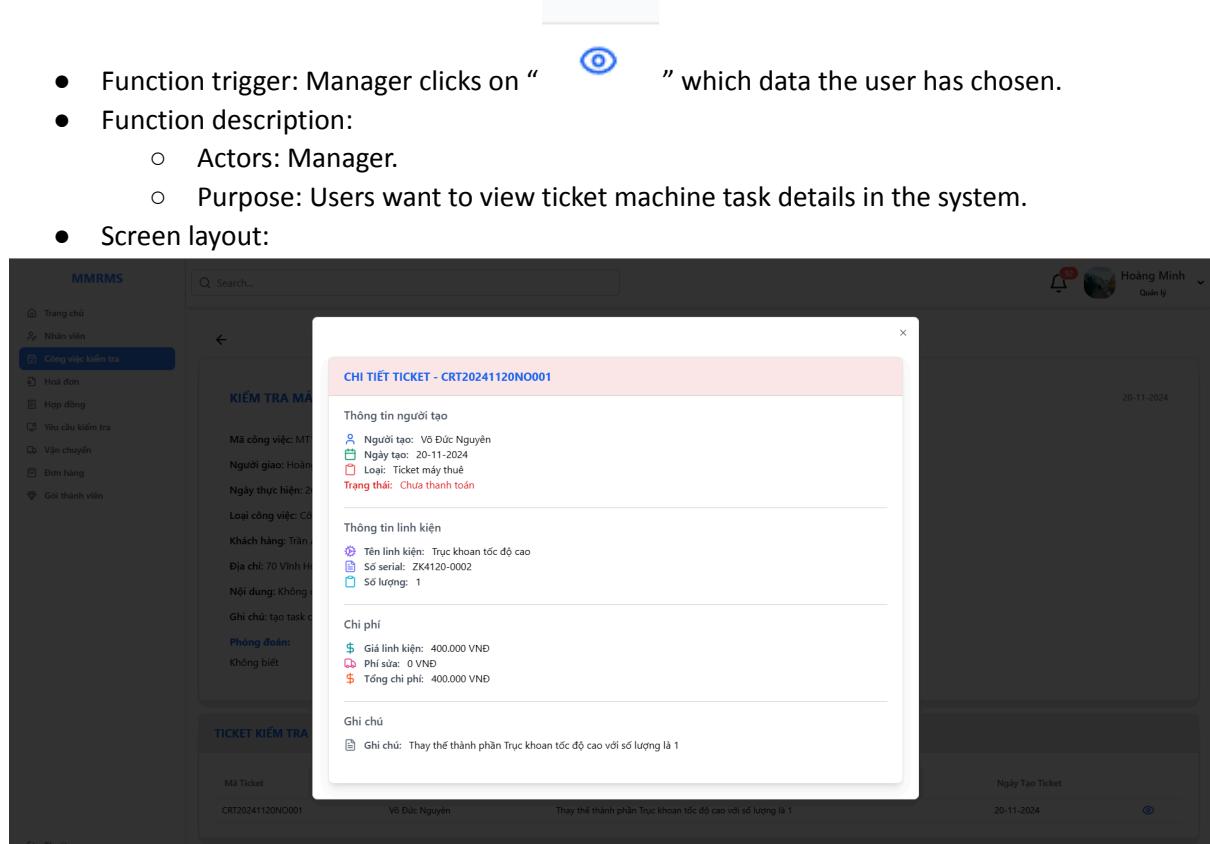


Figure 141. View Ticket Machine Task Detail screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system manager account.
    - User has permissions to access the system.
    - User is in “Công việc kiểm tra” screen and detail of task screen.
  - Post condition:
    - Success: User can view machine task details in the system.
    - Fail: When load data with an error, the system will show an error toast.
  - Business rules: BR-39.

### 3.2.11.4 Create Machine Task

- Function trigger: Manager clicks on “Tạo mới công việc” which data user choose.
- Function description:
  - Actors: Manager.
  - Purpose: Users want to create machine tasks in the system.
- Screen layout:

Vui lòng chọn loại công việc

Kiểm tra máy thuê  
(Kiểm tra máy thuê hiện đang có 4 công việc đang chờ tạo)

Kiểm tra máy hết hạn hợp đồng  
(Kiểm tra máy hết hạn hợp đồng hiện đang có 0 công việc đang chờ tạo)

Tiếp tục

Figure 142. Create Machine Task screen

Thông tin công việc

**Yêu cầu bảo trì \***  
REQ20241120NO052

**Nội dung công việc \***  
Kiểm tra máy thuê theo yêu cầu

**Ghi chú \***  
Kiểm tra máy

**NỘI DUNG YÊU CẦU**

Mã yêu cầu bảo trì: REQ20241120NO052  
Mã hợp đồng bảo trì: CON20241115NO0002  
Máy: TOYODA-0001  
Địa chỉ cài bảo trì: 70 Vịnh Hộp, Phường 4, Quận 4, Hồ Chí Minh  
Phòng đoàn: Hệ thống điện  
Ghi chú: asdasdasdasd

Quay lại

Tiếp tục

Figure 143. Create task: Request check machine

Figure 144. Create task: Terminate contract

Figure 145. Create Machine Task screen

- Function Detail:

- Pre-condition:

- User is successfully logs into the system manager account.
- User has permissions to access the system.
- User is in “Công việc kiểm tra” screen.

- Post condition:

- Success: Users can create machine tasks in the system.
- Fail: When adding data with error will show an error toast.

- Business rules: BR-40, BR-41, BR-54.

### 3.2.12 Manage Delivery Task

#### 3.2.12.1 View Delivery Task List

- Function trigger: Manager clicks on “Vận chuyển” on sidebar in menu section.
- Function description:
  - Actors: Manager.
  - Purpose: User wants to view the delivery task list in the system.
- Screen layout:

The screenshot shows the 'Delivery Tasks Management' screen. On the left, there is a sidebar with various menu items: Trang chủ, Nhân viên, Công việc kiểm tra, Hóa đơn, Hợp đồng, Yêu cầu kiểm tra, Vận chuyển (which is highlighted), Đơn hàng, and Gói thành viên. The main area has a header 'DANH SÁCH VẬN CHUYỂN' with a search bar 'Tim kiếm công việc' and a button '+ Tạo mới công việc'. Below the header, there is a filter bar with color-coded status indicators: Chưa thực hiện (blue), Đang giao hàng (orange), Giao hàng thành công (green), Giao thất bại (red), and Đã xử lý (black). The main content area displays four delivery tasks in a table format:

Giao hàng	Nhân viên thực hiện	Ngày giao công việc	Người tạo
DT23 - REH20241119NO002	Võ Đức Nguyễn	28-11-2024	Hoàng Minh
DT22 - REH20241118NO002	Võ Đức Nguyễn	28-11-2024	Hoàng Minh
DT21 - REH20241118NO002	Võ Đức Nguyễn	10-12-2024	Hoàng Minh
Giao hàng			Hoàng Minh

At the bottom left of the sidebar is a 'Thoát' (Logout) button.

Figure 146. Delivery Tasks Management screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system manager account.
    - User has permissions to access the system.
  - Post condition:
    - Success: User can view the delivery task list in the system.
    - Fail: When load data with an error, the system will show an error toast.
  - Business rules: N/A.

#### 3.2.12.2 View Delivery Task Detail

- Function trigger: Manager clicks on “Xem” which data the user has chosen.
- Function description:
  - Actors: Manager.
  - Purpose: Users want to view delivery task details in the system.
- Screen layout:

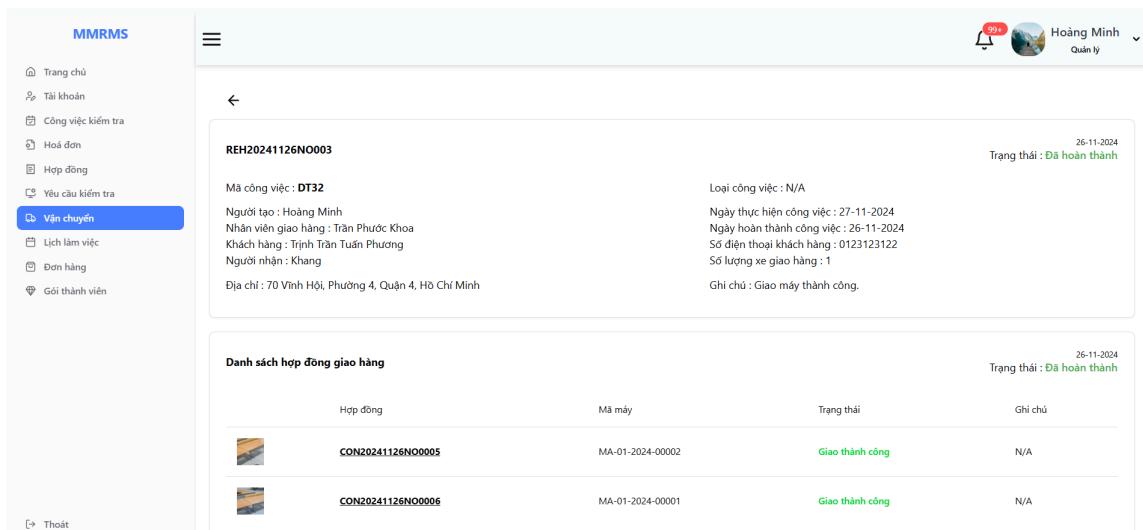


Figure 147. Delivery Task Detail screen

- Function Detail:

- Pre-condition:

- User is successfully logs into the system manager account.
    - User has permissions to access the system.
    - User is in “Vận chuyển” screen.

- Post condition:

- Success: User can view delivery task detail in the system.
    - Fail: When load data with an error, the system will show an error toast.

- Business rules: N/A.

### 3.2.12.3 Create Delivery Task

- Function trigger: Manager clicks on “Tạo mới công việc” which data user choose.

- Function description:

- Actors: Manager.
  - Purpose: Users want to create delivery tasks in the system.

- Screen layout:

Figure 148. Create Delivery Task screen

Figure 149. Create Delivery Task screen

- Function Detail:

- Pre-condition:
  - User is successfully logs into the system manager account.
  - User has permissions to access the system.
- Post condition:
  - Success: Users can create machine tasks in the system.
  - Fail: When adding data with error will show an error toast.
- Business rules: BR-41, BR-44, BR-54, BR-59.

### 3.2.12.4 Create Delivery Task Fail

- Function trigger: Manager clicks on “Tạo công việc” which data user choose.
- Function description:
  - Actors: Manager .
  - Purpose: Users want to create delivery tasks in the system.
- Screen layout:

Figure 150. Create Delivery Task Fail screen

Figure 151. Create Delivery Task Fail screen

Figure 152. Create Delivery Task Fail screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system manager account.
    - User has permissions to access the system.
    - User is in “Vận chuyển” screen and is in task detail with status is “Thất bại”.
  - Post condition:
    - Success: Users can create machine tasks in the system.
    - Fail: When adding data with error will show an error toast.
  - Business rules: BR-45, BR-46, BR-54, BR-59.

### 3.2.13 Manage Machine Component

#### 3.2.13.1 View Machine Component List

- Function trigger: Website staff clicks on “Thành phần máy móc” on the sidebar in the menu section.
- Function description:
  - Actors: Website staff.
  - Purpose: User wants to view the machine component list in the system.
- Screen layout:

The screenshot shows the 'DANH SÁCH CÁC THÀNH PHẦN MÁY' (Machine Components List) page. The left sidebar has a 'Thành phần máy móc' button highlighted in blue. The main area displays a table with columns: Tên (Name), Số lượng (Quantity), Giá (Price), Ngày nhập (Import Date), and Tình trạng (Status). Each row contains a green 'Còn hàng' (In Stock) button and a checkbox. The table lists various components like Tủ điện điều khiển, Bộ thay dao tự động, etc., all marked as 'Còn hàng'.

Tên	Số lượng	Giá	Ngày nhập	Tình trạng
Tủ điện điều khiển	100 cái	50.000.000 đ	30-11-2024	Còn hàng   <input checked="" type="checkbox"/>
Bộ thay dao tự động	100 cái	80.000.000 đ	30-11-2024	Còn hàng   <input checked="" type="checkbox"/>
Bộ làm mát	100 cái	15.000.000 đ	30-11-2024	Còn hàng   <input checked="" type="checkbox"/>
Hệ thống dẫn hướng trục Z	100 cái	20.000.000 đ	30-11-2024	Còn hàng   <input checked="" type="checkbox"/>
Hệ thống dẫn hướng trục Y	100 cái	20.000.000 đ	30-11-2024	Còn hàng   <input checked="" type="checkbox"/>
Hệ thống dẫn hướng trục X	100 cái	20.000.000 đ	30-11-2024	Còn hàng   <input checked="" type="checkbox"/>
Động cơ servo trục Z	100 cái	30.000.000 đ	30-11-2024	Còn hàng   <input checked="" type="checkbox"/>

Figure 153. Component Management screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system.
    - User has permissions to access the system.
  - Post condition:
    - Success: User can view the machine component list in the system.
    - Fail: When load data with an error, the system will show an error toast.
  - Business rules: N/A.

#### 3.2.13.2 Create New Machine Component

- Function trigger: Website staff clicks on “Thêm mới thành phần” button on machine component screen.
- Function description:
  - Actors: Website staff.
  - Purpose: User wants to create a new machine component in the system.
- Screen layout:

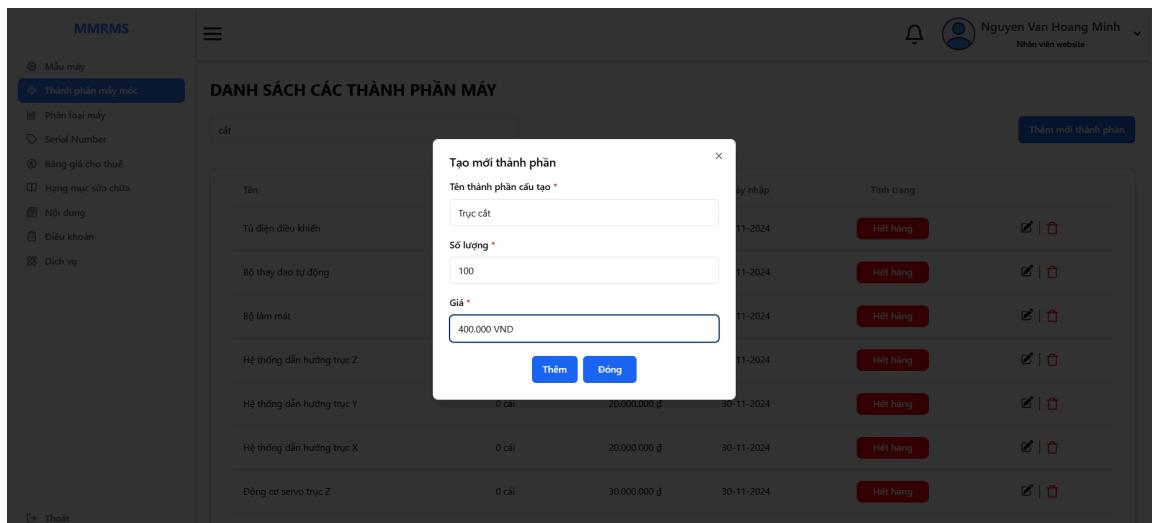


Figure 154. Create Component screen

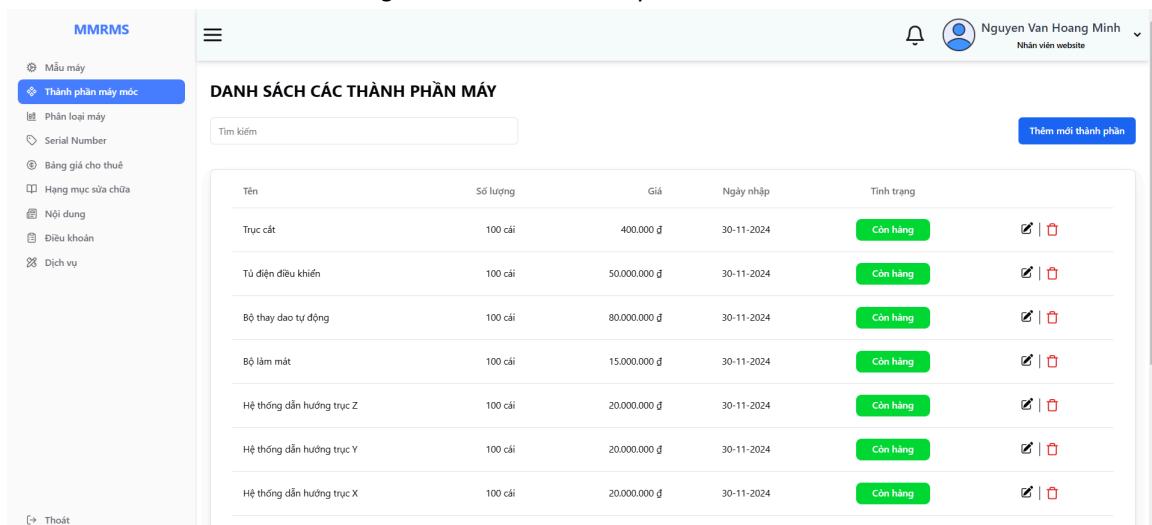


Figure 155. Create Component screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system.
    - User has permissions to access the system.
  - Post condition:
    - Success: The system will show a success toast and reload the list.
    - Fail: When load data with an error, the system will show an error toast.
  - Business rules: BR-18.

### 3.2.13.3 Update Machine Component

- Function trigger: Website staff clicks on “Pencil” icon on machine component item in list.
- Function description:
  - Actors: Website staff.
  - Purpose: Users want to update machine components in the system.
- Screen layout:

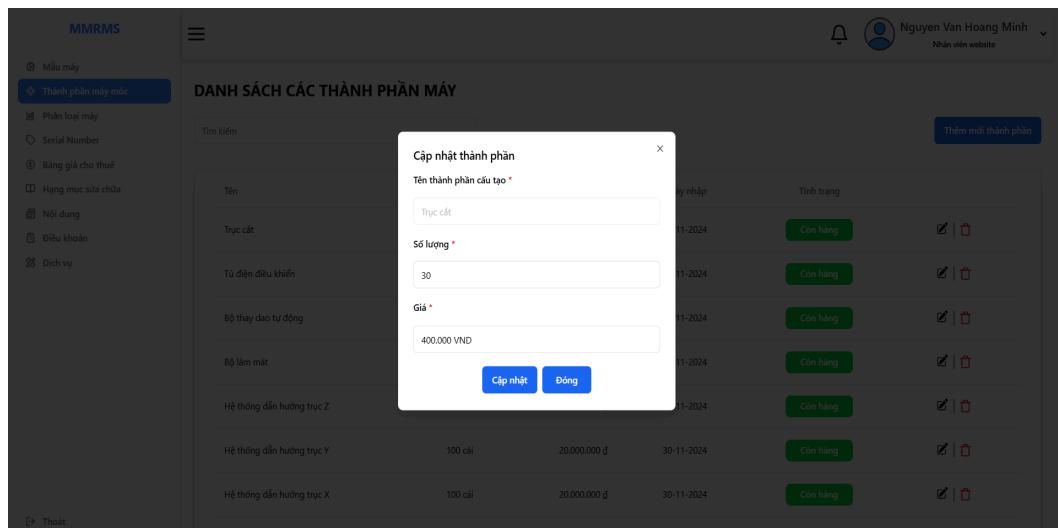


Figure 156. Update Component screen

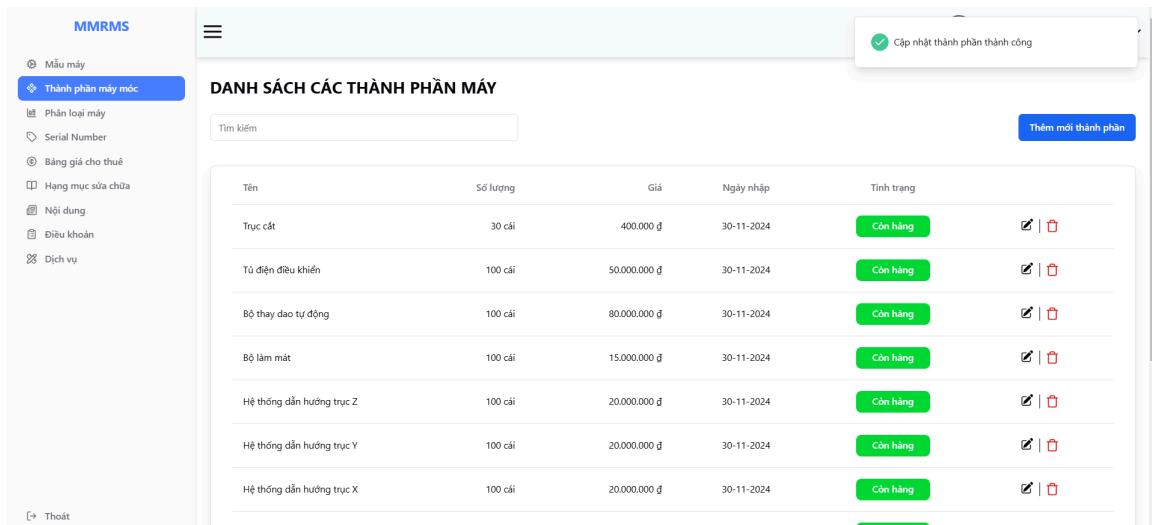


Figure 157. Update Component screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system.
    - User has permissions to access the system.
  - Post condition:
    - Success: The system will show a success toast and reload the list.
    - Fail: When updating data with an error, the system will show an error toast.
  - Business rules: BR-18.

### 3.2.13.4 Delete Machine Component

- Function trigger: Website staff clicks on “Trash” icon on machine component item in list.
- Function description:
  - Actors: Website staff.
  - Purpose: Users want to delete machine components in the system.
- Screen layout:

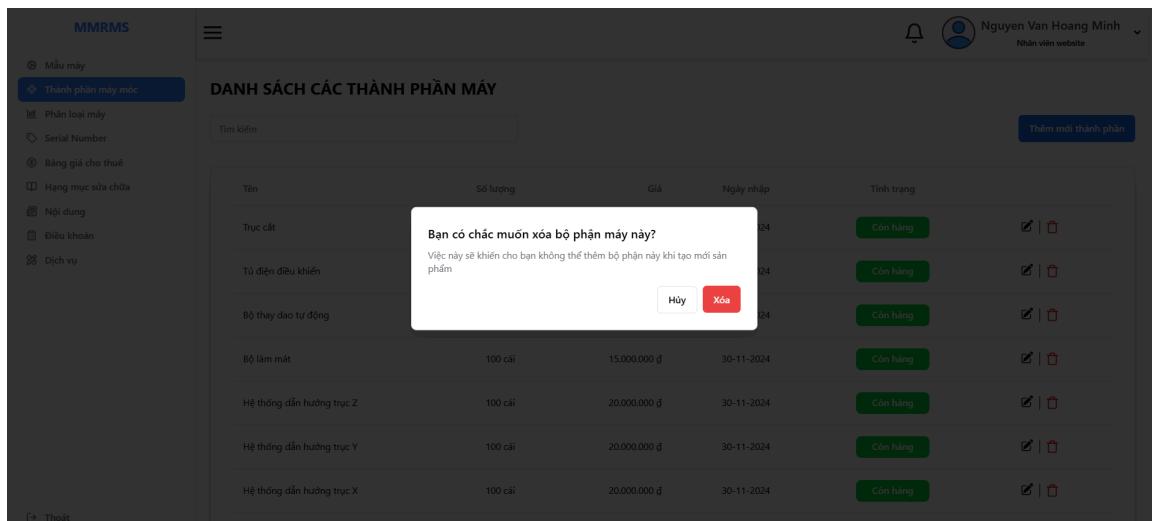


Figure 158. Delete Component screen

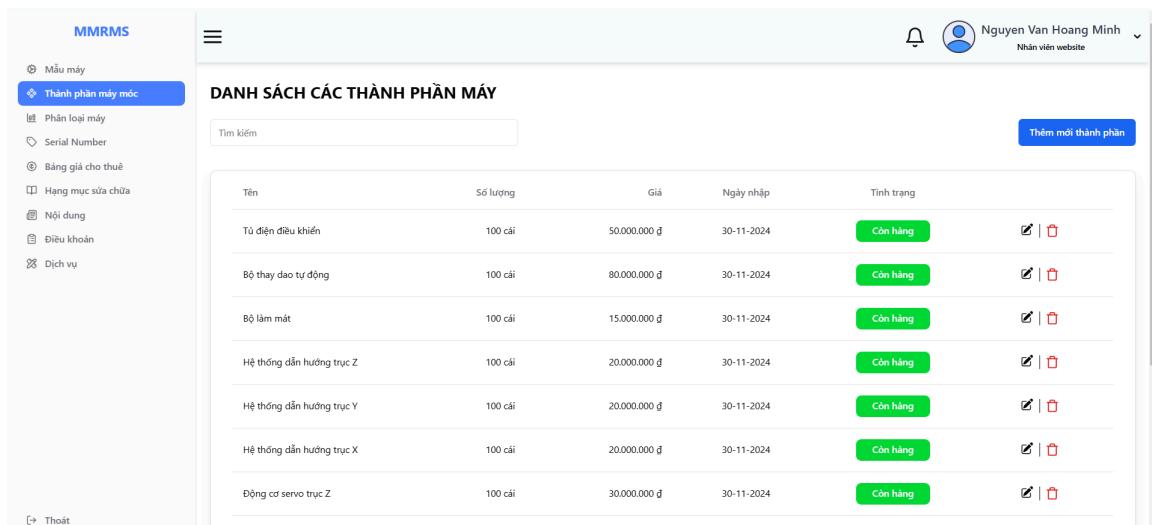


Figure 159. Delete Component screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system.
    - User has permissions to access the system.
  - Post condition:
    - Success: The system will show a success toast and reload the list.
    - Fail: When deleting data with an error, the system will show an error toast.
  - Business rules: N/A.

### 3.2.14 Manage Machine Category

#### 3.2.14.1 View Machine Category List

- Function trigger: Website staff clicks on “Phân loại máy” on the sidebar in the menu section.
- Function description:
  - Actors: Website staff.
  - Purpose: User wants to view the machine category list in the system.
- Screen layout:

The screenshot shows a web application interface for managing machine categories. On the left, a sidebar menu lists various categories: Mẫu máy, Thành phần máy móc, Phân loại máy (highlighted in blue), Serial Number, Bảng giá cho thuê, Hàng mục sửa chữa, Nội dung, Điều khoản, and Dịch vụ. Below the sidebar is a search bar labeled 'Tim kiếm' and a button 'Thêm mới loại máy'. The main content area is titled 'DANH SÁCH CÁC LOẠI MÁY' and displays a table of machine categories with columns 'Loại máy' and 'Ngày tạo'. The table includes rows for Máy dập, Máy khoan, Máy tiện, Máy bào, Máy phay, Máy mài, Máy cưa, and Máy hàn, each with an edit icon.

Figure 160. Machine Category Management screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system.
    - User has permissions to access the system.
  - Post condition:
    - Success: User can view the machine category list in the system.
    - Fail: When loading data with an error, the system will show an error toast.
  - Business rules: N/A.

### 3.2.14.2 Create new Machine Category

- Function trigger: Website staff clicks on “Thêm mới loại máy” button on the right hand side in Category screen.
- Function description:
  - Actors: Website staff.
  - Purpose: Users want to create a new machine category in the system.
- Screen layout:

The screenshot shows the 'Thêm mới loại máy' (Add new category) modal dialog. It contains a text input field labeled 'Loại máy \*' with the placeholder 'Máy mài gỗ' and a red 'X' button. Below the input field is a 'Tạo' (Create) button. The background shows the same machine category list as Figure 160, with the 'Máy mài gỗ' entry visible in the table.

Figure 161. Create Machine Category screen

Figure 162. Create Machine Category screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system.
    - User has permissions to access the system.
  - Post condition:
    - Success: The system will show a success toast and reload the list.
    - Fail: When creating data with an error, the system will show an error toast.
  - Business rules: BR-60.

### 3.2.14.3 View Machine Category List (Customer Role)

- Function trigger: User clicks on “Lọc” button
- Function description:
  - Actors: Customer, Guest
  - Purpose: User wants to view the machine category list in the system.
- Screen layout:

Figure 163. View Machine Category List Web screen

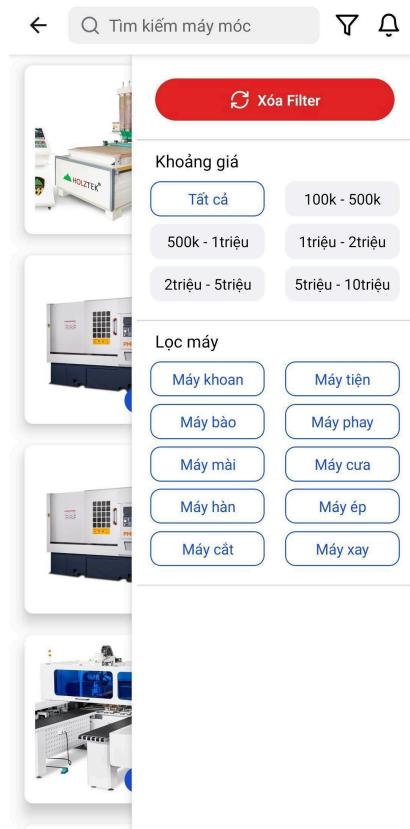


Figure 164. View Category List Mobile screen

- Function Detail:
  - Pre-condition:
    - User successfully access the website
  - Post condition:
    - Success: User can view the machine category list in the system.
    - Fail: System display toast error message
  - Data:
    - CategoryName: text
  - Business rules: N/A.

### 3.2.15 Manage Renting Request Delivery

#### 3.2.15.1 View Renting Request Delivery List

- Function trigger: User clicks on “Giao hàng” tab to navigate to Delivery page
- Function description:
  - Actors: Customer
  - Purpose: User wants to view the account renting request delivery list
- Screen layout:

No.	Địa chỉ	Trạng thái	Ngày giao dự kiến	Ngày hoàn tất	Người giao
1	70 Vĩnh Hội, Phường 4, Quận 4, Hồ Chí Minh REH20241115N00002	Hoàn thành	20-11-2024	15-11-2024	Võ Đức Nguyên
2	70 Vĩnh Hội, Phường 4, Quận 4, Hồ Chí Minh REH20241115N00001	Hoàn thành	19-11-2024	15-11-2024	Võ Đức Nguyên
3	70 Vĩnh Hội, Phường 4, Quận 4, Hồ Chí Minh REH20241114N00002	Hoàn thành	22-11-2024	14-11-2024	Võ Đức Nguyên
4	70 Vĩnh Hội, Phường 4, Quận 4, Hồ Chí Minh REH20241114N00001	Hoàn thành	18-10-2024	18-10-2024	Võ Đức Nguyên

Figure 165. View Renting Request Delivery List Web screen

REH20241120N0003
- Địa chỉ: Văn phòng Đại học FPT, 590 Cách Mạng Tháng 8, Phường ... - Ngày giao dự kiến: 27-11-2024 - Ngày hoàn thành: (Chưa có)
REH20241115N00002
- Địa chỉ: 70 Vĩnh Hội, Phường 4, Quận 4, Hồ Chí Minh - Ngày giao dự kiến: 20-11-2024 - Ngày hoàn thành: 15-11-2024
REH20241115N00001
- Địa chỉ: 70 Vĩnh Hội, Phường 4, Quận 4, Hồ Chí Minh - Ngày giao dự kiến: 19-11-2024 - Ngày hoàn thành: 15-11-2024
REH20241114N00002
- Địa chỉ: 70 Vĩnh Hội, Phường 4, Quận 4, Hồ Chí Minh - Ngày giao dự kiến: 22-11-2024 - Ngày hoàn thành: 14-11-2024
REH20241114N00001
- Địa chỉ: 70 Vĩnh Hội, Phường 4, Quận 4, Hồ Chí Minh - Ngày giao dự kiến: 18-10-2024 - Ngày hoàn thành: 18-10-2024

Figure 166. View Renting Request Delivery List Mobile screen

- Function Detail:
  - Pre-condition:
    - Customer is logged in the website
    - Customer already has renting requests that has been assigned for delivery
  - Post condition:
    - Success: User can view the account renting request delivery list
    - Fail: System display toast error message
  - Data:

- Address: text
- RentingRequestId: text
- Status: text
- DateShip: text
- DateShipExpected: text
- StaffName: text
- Business rules: N/A.

### 3.2.15.2 View Renting Request Delivery Detail

- Function trigger: User choose a renting request delivery that they want to see its detail
- Function description:
  - Actors: Customer
  - Purpose: User wants to view the renting request delivery detail
- Screen layout:

The screenshot shows a web-based application interface for managing rental requests. At the top, there's a navigation bar with links for 'Trang chủ', 'Sản phẩm', 'Tin tức', 'Quyền lợi', and 'Điều khoản'. On the right side of the header are icons for user profile and notifications.

The main content area is titled 'Nội dung đơn giao hàng' (Delivery Note Content). It shows a summary box for 'Đơn giao của REH20241115NO0002' (Delivery of REH20241115NO0002) with a 'Hoàn thành' (Completed) status. Below this are sections for 'Thông tin đơn giao hàng' (Delivery Information) and a table showing a single item: '1 CON20241115NO0004 Stuter\_S33\_001'. To the right of the table is a placeholder image for a QR code or tracking image.

On the right side of the screen, there's a sidebar titled 'Nội dung cập nhật' (Update Content) which lists three update entries:

- Thời gian cập nhật: 10:04:34, 15-11-2024  
Người cập nhật: Võ Đức Nguyễn  
Nội dung: Đơn giao hàng được hoàn thành toàn bộ
- Thời gian cập nhật: 10:03:48, 15-11-2024  
Người cập nhật: Võ Đức Nguyễn  
Nội dung: Thay đổi trạng thái từ [Mới tạo] trở thành [Đang giao]
- Thời gian cập nhật: 09:57:57, 15-11-2024  
Người cập nhật: Hoàng Minh  
Nội dung: Tạo và giao đơn giao cho nhân viên tên: Nguyễn Minh Nguyên

Figure 167. View Renting Request Delivery Detail Web screen

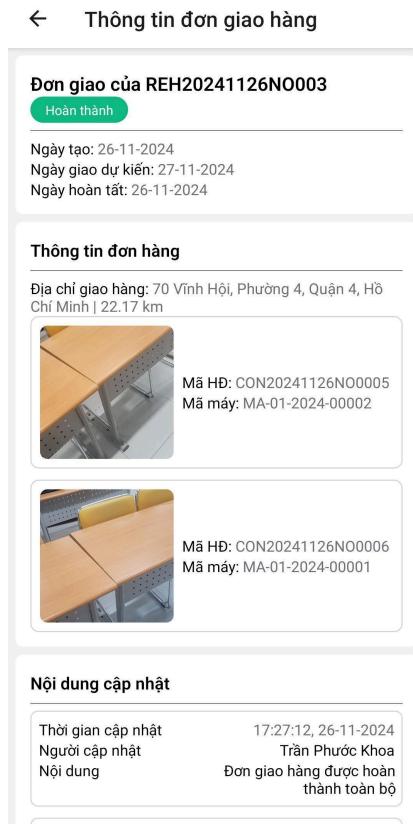


Figure 168. View Renting Request Delivery Detail Mobile screen

- Function Detail:
  - Pre-condition:
    - Customer is logged in the website
    - Customer already has renting requests that has been assigned for delivery
  - Post condition:
    - Success: User can view the renting request delivery detail
    - Fail: System display toast error message
  - Data:
    - Address: text
    - RentingRequestId: text
    - Status: text
    - DateShip: text
    - DateCreate: text
    - DateShipExpected: text
    - StaffName: text
    - ContractList:
      - ContractId: text
      - SerialNumber: text
      - ShipImage: text
    - LogList:
      - DateCreate: text
      - StaffName: text
      - Description: text
  - Business rules: N/A.

### 3.2.16 Manage Profile

#### 3.2.16.1 View Profile (Customer Role)

- Function trigger: User clicks on “Thông tin tài khoản” tab to navigate to Profile page
- Function description:
  - Actors: Customer
  - Purpose: User wants to view the account profile
- Screen layout:

**Tài khoản**

**Thông tin tài khoản**

Email \*: trivm182003@gmail.com

Họ và tên \*: Nguyễn Anh Lâm

Ngày sinh \*: Ngày 5 tháng 06 năm 2024

Chức vụ \*: Quản lý

Số điện thoại \*: 0798078550

Giới tính \*: Nữ

Mã số thuế \*: 0315833051

Công ty: CÔNG TY TNHH HẢO HÂN LOGISTICS  
Địa chỉ: Số 56, Đường Số 19, Phường Hiệp Bình Phước, Quận Thủ Đức, Thành phố Hồ Chí Minh, Việt Nam

**Cập nhật**

Figure 169. View Profile Web screen

**Hồ sơ**

Email \*: trivm182003@gmail.com

Họ và tên \*: Nguyễn Anh Tú

Ngày sinh \*: 02-07-2024

Giới tính \*: Nữ

Số điện thoại \*: 0798078551

Chức vụ \*: Quản lý

Mã số thuế \*: 0315833051

Công ty: CÔNG TY TNHH HẢO HÂN LOGISTICS  
Địa chỉ: Số 56, Đường Số 19, Phường Hiệp Bình Phước, Quận Thủ Đức, Thành phố Hồ Chí Minh, Việt Nam

**Cập nhật thông tin**

Figure 170. View Profile Mobile screen

- Function Detail:

- Pre-condition:
  - Customer is logged in the website
- Post condition:
  - Success: User can view the account profile
  - Fail: System display toast error message
- Data:
  - Email: text
  - Name: text
  - DateBirth: text
  - Position: text
  - Phone: text
  - Gender: text
  - TaxCode: text
  - Company: text
  - Address: text
  - AvatarImage: text
- Business rules: N/A.

### 3.2.16.2 Update Profile (Customer Role)

- Function trigger: User clicks on “Thông tin tài khoản” tab to navigate to Profile page and change their information
- Function description:
  - Actors: Customer
  - Purpose: User wants to update their account profile
- Screen layout:

The screenshot shows a web application interface for updating a user's profile. On the left, there is a sidebar with various menu items: 'Thông tin tài khoản' (selected), 'Đổi mật khẩu', 'Địa chỉ', 'Đơn hàng', 'Giao hàng', 'Hợp đồng', 'Thanh toán', and 'Yêu cầu sửa chữa'. The main content area is titled 'Thông tin tài khoản'. It contains several input fields with validation requirements (indicated by red asterisks): 'Email' (trivm182003@gmail.com), 'Họ và tên' (Nguyễn Anh Tú), 'Ngày sinh' (ngày 4 tháng 06 năm 2024), 'Chức vụ' (Quản lý), 'Số điện thoại' (0798078550), 'Giới tính' (Nữ), and 'Mã số thuế' (0315833051). Below these fields, there is a small note about the company: 'CÔNG TY TNHH HÀO HÂN LOGISTICS' located at 'Số 56, Đường Số 19, Phường Hiệp Bình Phước, Quận Thủ Đức, Thành phố Hồ Chí Minh, Việt Nam'. At the bottom right of the form is a blue 'Cập nhật' button. A success toast message 'Cập nhật thông tin thành công' is displayed at the top right of the page.

Figure 171. Update Profile Web screen

Email \*

trivm182003@gmail.com

Họ và tên \*

Nguyễn Anh Tú

Ngày sinh \*

02-07-2024

Giới tính \*

Nữ

Số điện thoại \*

0798078551

Chức vụ \*

Quản lý

Mã số thuế \*

0315833051

Công ty: CÔNG TY TNHH HẢO HÂN LOGISTICS  
Địa chỉ: Số 56, Đường Số 19, Phường Hiệp Bình Phước, Quận Thủ Đức, Thành phố Hồ Chí Minh, Việt Nam

Cập nhật thông tin

Figure 172. Update Profile Mobile screen

- Function Detail:
  - Pre-condition:
    - Customer is logged in the website
  - Post condition:
    - Success: User successfully update their profile
    - Fail: System display toast error message
  - Data:
    - Email: text
    - Name: text
    - DateBirth: text
    - Position: text
    - Phone: text
    - Gender: text
    - TaxCode: text
    - Company: text
    - Address: text
    - AvatarImage: text
  - Business rules: N/A.

### 3.2.17 Manage Address

#### 3.2.17.1 View Address List

- Function trigger: User clicks on “Địa chỉ” tab to navigate to Address page
- Function description:
  - Actors: Customer
  - Purpose: User wants to view the account address list

- Screen layout:

No.	Địa chỉ		
1	130 Vĩnh Hội, Phường 4, Quận 4, Hồ Chí Minh		
2	382 Võ Văn Kiệt, Cô Giang, Quận 1, Hồ Chí Minh		
3	482 Huỳnh Tấn Phát, Bình Thuận, Quận 7, Hồ Chí Minh		
4	Liên Ấp 123, Vĩnh Lộc B, Bình Chánh, Hồ Chí Minh		
5	125 Chợ Lớn, Phường 11, Quận 6, Hồ Chí Minh		

Figure 173. View Address List Web screen

Figure 174. View Address List Mobile screen

- Function Detail:

- Pre-condition:
  - Customer is logged in the website
- Post condition:
  - Success: User can view the account address list
  - Fail: System display toast error message
- Data:

- Address: text
- Business rules: N/A.

### 3.2.17.2 Create New Address

- Function trigger: User clicks on “Thêm địa chỉ mới” button
- Function description:
  - Actors: Customer
  - Purpose: User wants to create a new address
- Screen layout:

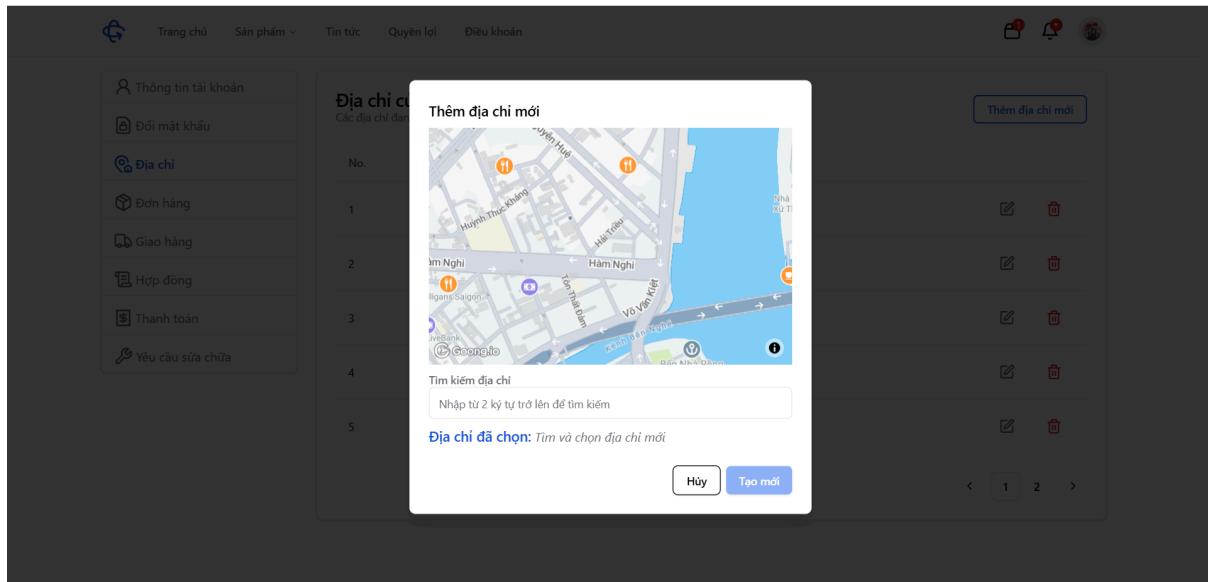


Figure 175. Create New Address Web screen 1: New address modal

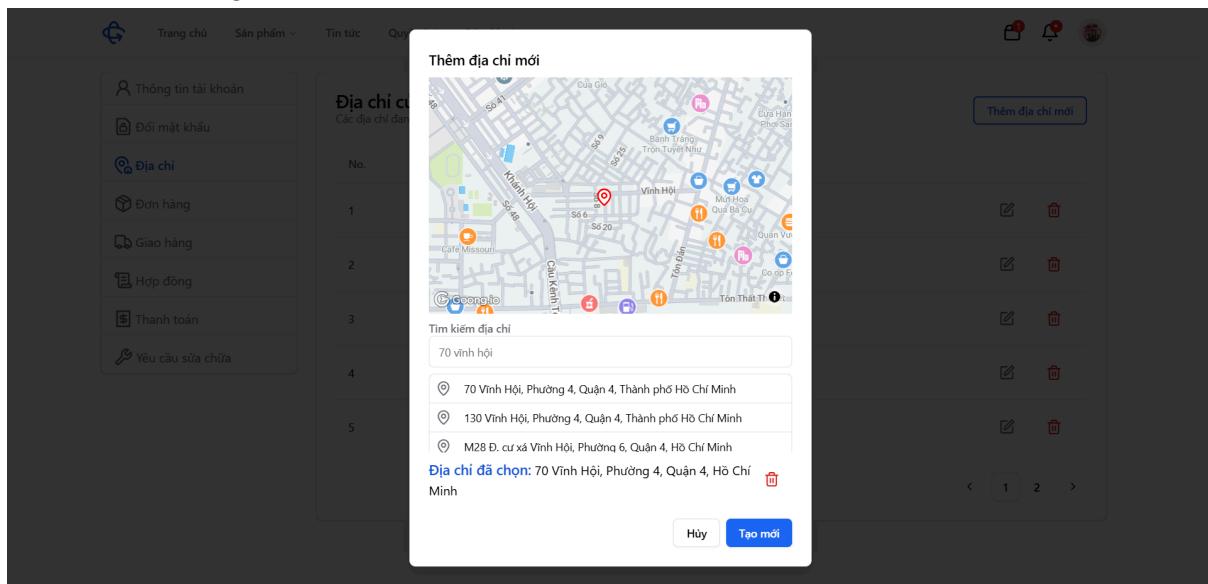
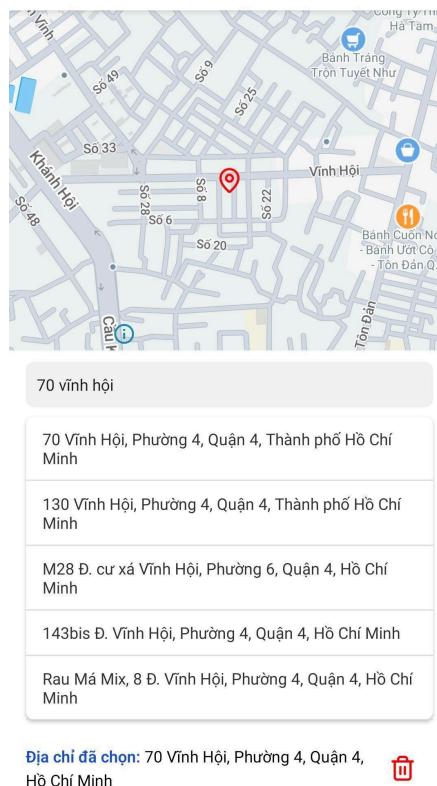


Figure 176. Create New Address Web screen 2: New address modal



*Figure 177. Create New Address Mobile screen 1: New address screen*

- Function Detail:
  - Pre-condition:
    - Customer is logged in the website
  - Post condition:
    - Success: User successfully create a new address
    - Fail: System display toast error message
  - Data:
    - SuggestedAddressList: text[]
    - ChosenAddress: text
  - Business rules: N/A.

### 3.2.17.3 Update Address

- Function trigger: User clicks on “” icon on a address
- Function description:
  - Actors: Customer
  - Purpose: User wants to update address
- Screen layout:

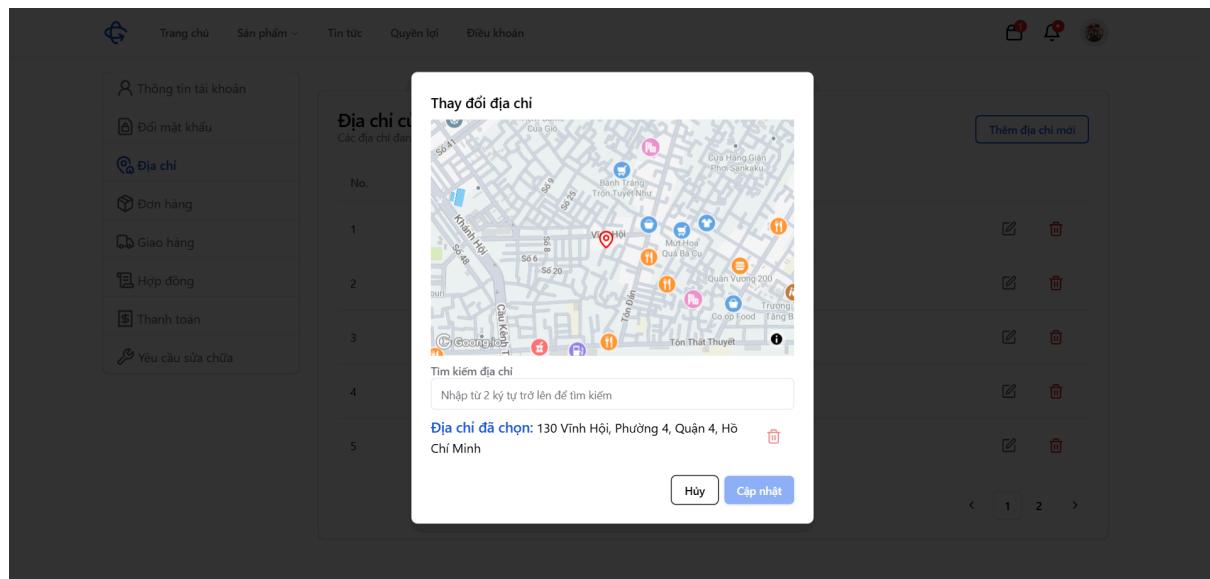


Figure 178. Update Address Web screen

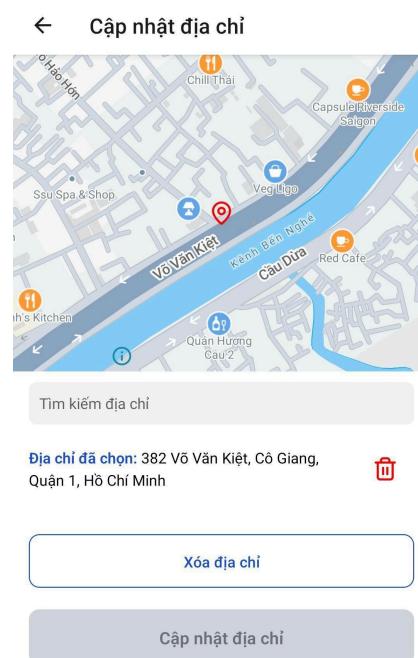


Figure 179. Update Address Mobile screen

- Function Detail:

- Pre-condition:
  - Customer is logged in the website
  - Customer already have at least one address
- Post condition:
  - Success: User successfully update address
  - Fail: System display toast error message
- Data:

- SuggestedAddressList: text[]
- ChosenAddress: text
- Business rules: N/A.

### 3.2.17.1 Delete Address

- Function trigger: User clicks on “  ” icon on a address
- Function description:
  - Actors: Customer
  - Purpose: User wants to delete address
- Screen layout:

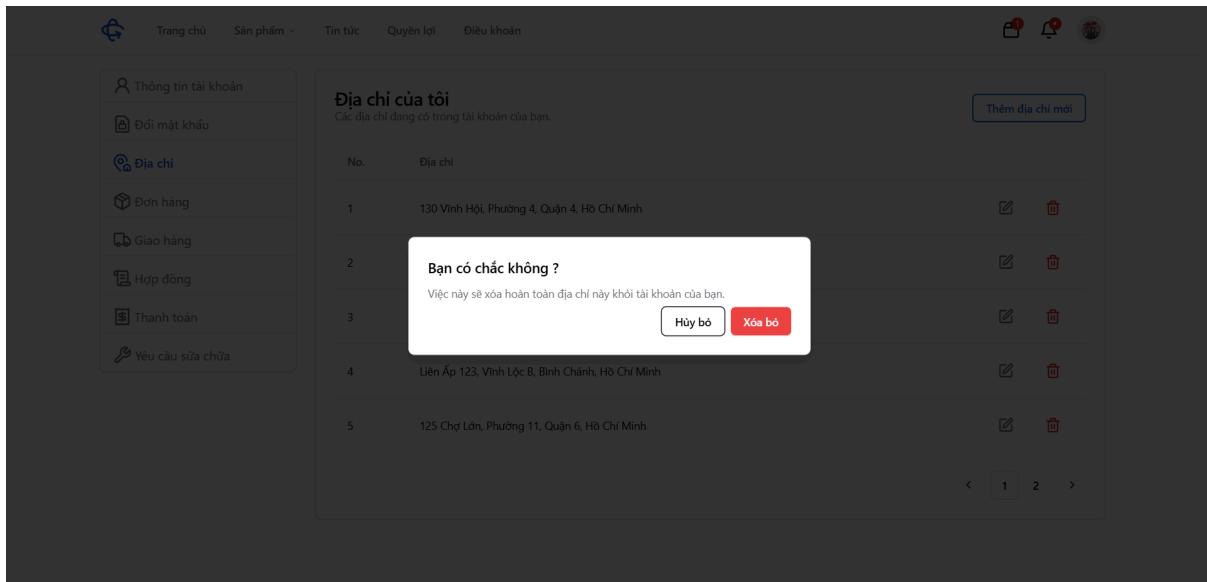
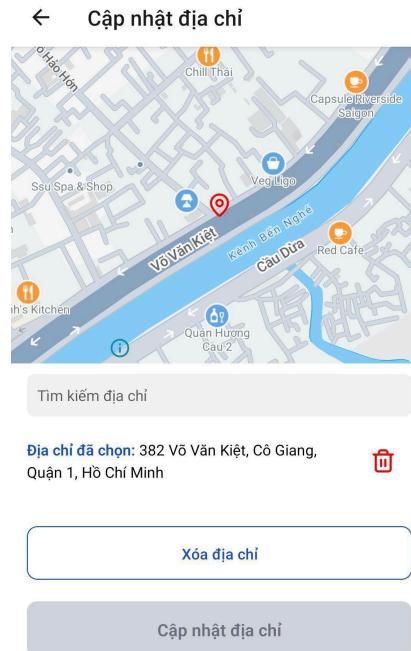


Figure 180. Delete Address Web screen



*Figure 181. Delete Address Mobile screen*

- Function Detail:
  - Pre-condition:
    - Customer is logged in the website
    - Customer already have at least one address
  - Post condition:
    - Success: User successfully delete address
    - Fail: System display toast error message
  - Business rules: N/A.

### 3.2.18 Manage Notification

#### 3.2.18.1 View Notification List (Customer Role)



- Function trigger: User clicks on “ ” icon to open the notification list
- Function description:
  - Actors: Customer
  - Purpose: User wants to view the account notification list
- Screen layout:

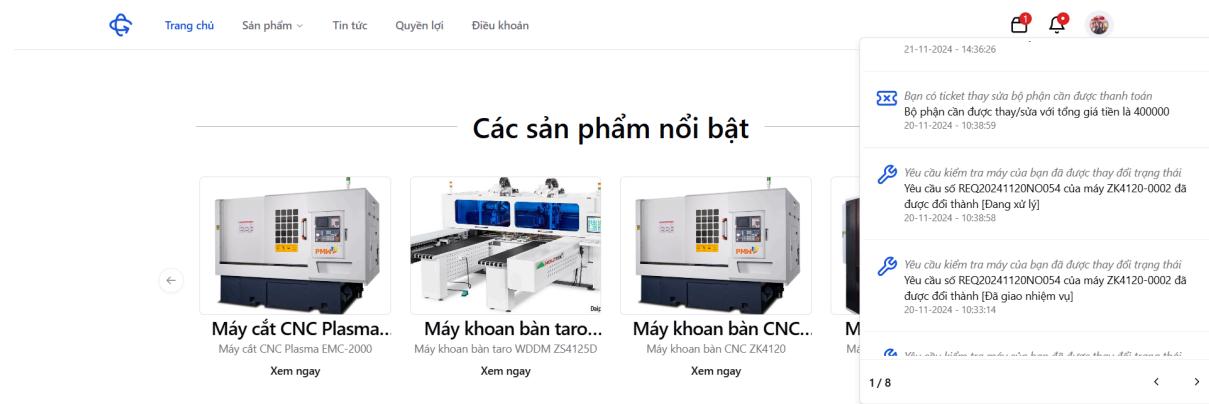


Figure 182. View Notification List Web screen

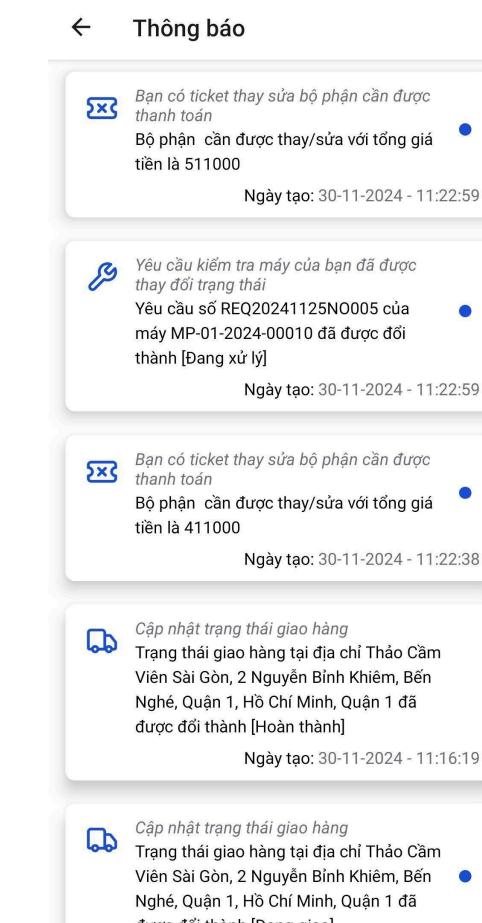


Figure 183. View Notification List Mobile screen

- Function Detail:
  - Pre-condition:
    - Customer is logged in the website
  - Post condition:
    - Success: User can view the account notification list

- Fail: System display a bell icon and message saying notification is empty
- Data:
  - Type: text
  - Title: text
  - Description: text
  - DateCreate: text
  - isRead: boolean
- Business rules: N/A.

### 3.2.19 Manage Machine Serial Number

#### 3.2.19.1. View machine serial number component

- Function trigger: User clicks on “More Horizontal” icon in the serial number table.
- Function description:
  - Actors: web-staff.
  - Purpose: User wants to view the component of the serial number in the system.
- Screen layout:

Figure 184. Machine Serial Number table screen

Figure 185. Machine Serial Number Component table screen

- Function Detail:
  - Pre-condition:

- User is successfully logs into the system.
- User has permissions to access the system.
- User is at the machine information screen.
- Post condition:
  - Success: User can view the components and logs of chosen Machine Serial Number.
  - Fail: When adding an error it will show an error toast.
- Business rules: N/A.

### 3.2.19.2. Mark machine serial number component as broken

- Function trigger: User clicks on “More Horizontal” icon in the serial number component table.
- Function description:
  - Actors: web-staff.
  - Purpose: User wants to mark the component of the serial number in the system as broken.
- Screen layout:

Figure 186. Machine Serial Number Component table screen

Figure 187. Modal input

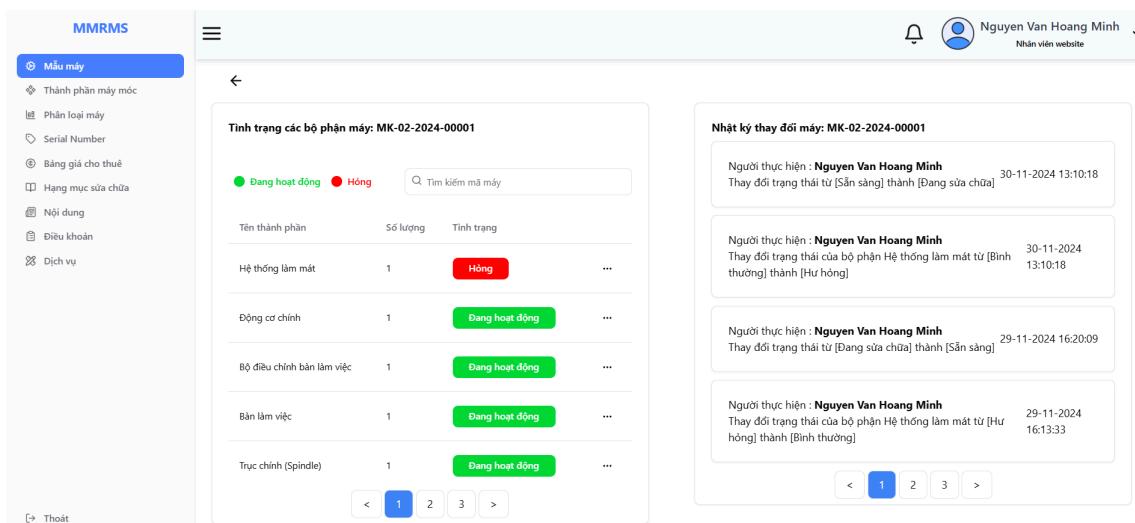


Figure 188. Machine Serial Number Component table screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system.
    - User has permissions to access the system.
    - User is at the machine serial number component screen.
  - Post condition:
    - Success: User can view the chosen component is changed to status name “Hỗn”.
    - Fail: When adding an error it will show an error toast.
  - Business rules: BR-03.

### 3.2.19.3. Replace component broken

- Function trigger: User clicks on “More Horizontal” icon in the serial number component table.
- Function description:
  - Actors: web-staff.
  - Purpose: User wants to replace the component which is broken.
- Screen layout:

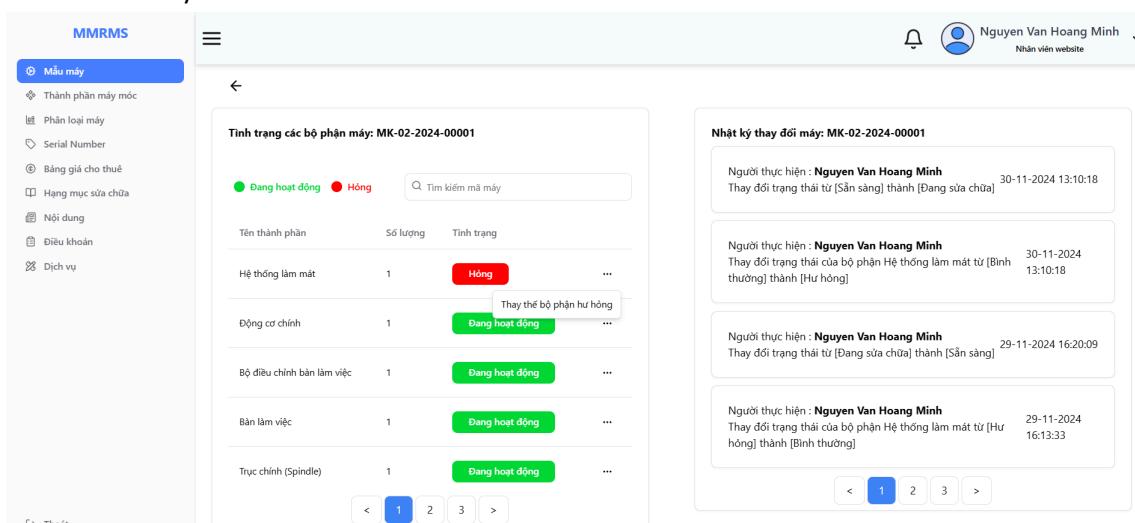


Figure 189. Machine Serial Number Component table screen

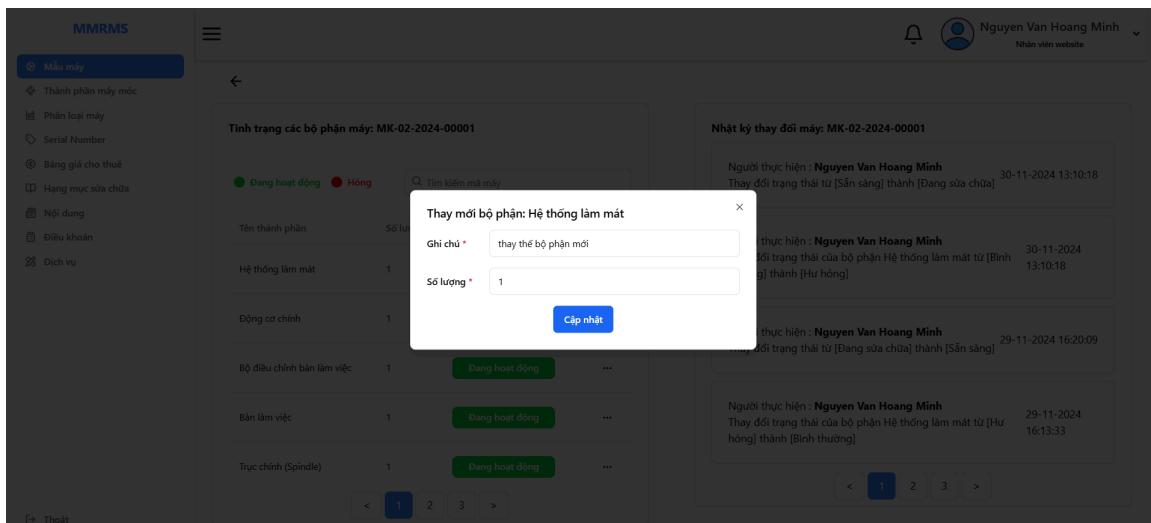


Figure 190. Modal input

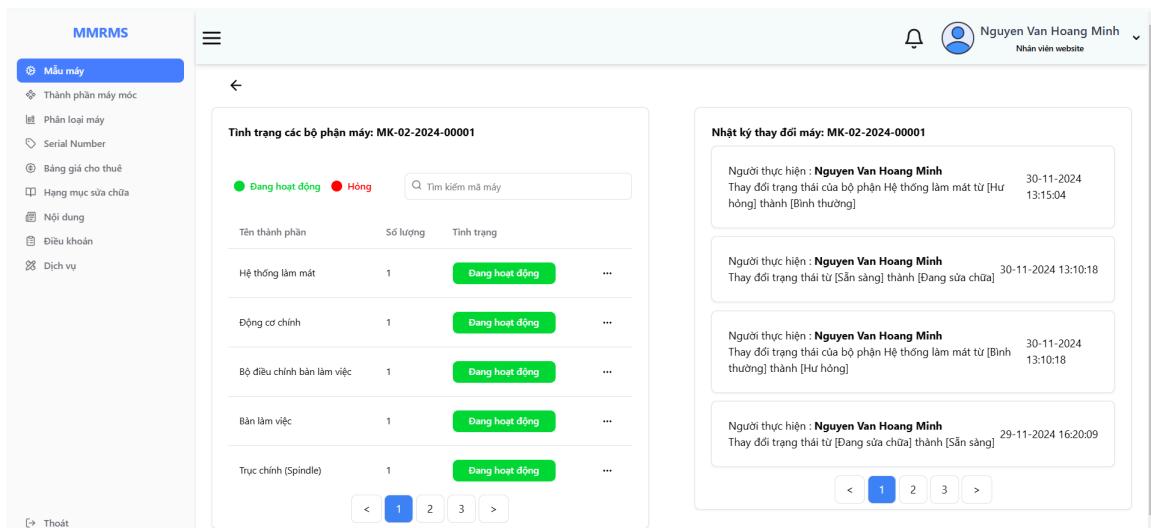


Figure 191. Machine Serial Number Component table screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system.
    - User has permissions to access the system.
    - User is at the machine serial number component screen.
  - Post condition:
    - Success: Users can view the chosen component's status name “Đang hoạt động”.
    - Fail: When adding an error it will show an error toast.
  - Business rules: BR-03, BR-53.

### 3.2.19.4. View rental history of serial number

- Function trigger: User clicks on “More Horizontal” icon in the serial number table.
- Function description:
  - Actors: web-staff.
  - Purpose: User wants to view the rental history of the serial number in the system.
- Screen layout:

Số Serial	Ngày nhập	Tình trạng	Giá thuê	Trạng thái hoạt động	Thời gian thuê
MK-02-2024-00006	28-11-2024	70%	150.000 đ/ngày	Đang thuê	09-12-2024 - 30-11-2024
MK-02-2024-00007	28-11-2024	95%	245.000 đ/ngày	Đang thuê	09-12-2024 - 09-03-2025
MK-02-2024-00008	28-11-2024	100%	250.000 đ/ngày	Đã đặt chỗ	09-12-2024 - 09-04-2025
MK-02-2024-00009	28-11-2024	80%	200.000 đ/ngày	Đã đặt chỗ	09-12-2024 - 09-05-2025
MK-02-2024-00010	28-11-2024	85%	225.000 đ/ngày	Đã đặt chỗ	09-12-2024 - 09-05-2025

Figure 192. Machine Serial Number table screen

Mã hợp đồng	Máy thuê	Ngày bắt đầu hợp đồng	Ngày hết hạn hợp đồng	Giá thuê/ngày	Số ngày đã thuê	Tổng tiền
CON20241130NO0005	Máy khoan bắn taro WDDM ZS3500D	09-12-2024	30-11-2024	150.000 đ	0	22.800.000 đ

Figure 193. Rental history list

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system.
    - User has permissions to access the system.
    - User is at the machine information screen.
  - Post condition:
    - Success: User can view rental history of selected Serial Number.
    - Fail: When an error occurred it will show an error toast.
  - Business rules: N/A.

### 3.2.19.5. View history of checking and fix issue of Serial Number

- Function trigger: User clicks on “More Horizontal” icon in the serial number table.
- Function description:
  - Actors: web-staff.
  - Purpose: User wants to view the list of fixing tickets of the serial number in the system.
- Screen layout:

The screenshot shows the MMRMS software interface. On the left, a sidebar menu includes: Mẫu máy (Machine Model), Thành phần máy móc (Machine Components), Phân loại máy (Machine Type), Serial Number, Bảng giá cho thuê (Renting Price Table), Hàng mục sửa chữa (Maintenance Items), Nội dung (Content), Điều khoản (Terms and Conditions), and Dịch vụ (Services). A central image shows a Holztek CNC machine. To the right, detailed machine information is listed:

MÁY KHOAN NGANG CNC FULL OPTION ( motor lớn, trục Z servor, khoan sâu 90mm )	China
Loại máy	Model
Máy bào	Holztek
Giá máy	Giá thuê
500.000.000 đ	500.000.000 đ/ngày
Ngày tạo	Tình trạng
24-11-2024	Tạm khóa
Khối lượng	Số lượng
450kg	3

Below this is a "DANH SÁCH SERIAL NUMBER" table:

Số Serial	Ngày nhập	Tình trạng	Giá thuê	Trạng thái hoạt động	Thời gian thuê	Actions
MA-01-2024-00001	24-11-2024	100%	500.000 đ/ ngày	Đang thuê	04-12-2024 - 27-11-2024	Bộ phận Lịch sử kiểm tra/sửa chữa Lịch sử thuê máy
MA-01-2024-00002	24-11-2024	100%	5.000.000 đ/ ngày	Đang thuê	04-12-2024 - 04-05-2025	...
MA-01-2024-00003	24-11-2024	100%	5.000.000 đ/ ngày	Đang thuê	12-12-2024 - 12-03-2025	...

At the bottom left is a "Thoát" (Logout) button.

Figure 194. Machine Serial Number table screen

The screenshot shows the MMRMS software interface. The sidebar menu is identical to Figure 194. The main area displays a "LỊCH SỬ KIỂM TRA VÀ SỬA CHỮA" (Check and Repair History) section:

**DANH SÁCH CÁC TICKET ĐƯỢC TẠO**

<b>Đá mài (#MA-01-2024-00002-CRT20241128NO001)</b>	Người tạo: Đinh Hoàng Thái	Giá thành phẩn: 300.000 đ
	Ngày tạo: 28-11-2024	Phi sửa chữa: 111.000 đ
	Số lượng: 1	Tổng cộng: 411.000 đ

**CHI TIẾT TICKET - CRT20241128NO001**

Thông tin người tạo:  
 Người tạo: Đinh Hoàng Thái  
 Ngày tạo: 28-11-2024  
 Loại: Ticket mua thuê  
 Trạng thái: Đã hoàn thành

Thông tin linh kiện:  
 Tên linh kiện: Đá mài  
 Số serial: MA-01-2024-00002  
 Số lượng: 1

Chi phí:  
 Giá linh kiện: 300.000 đ  
 Phi sửa: 111.000 đ  
 Tổng chi phí: 411.000 đ

Figure 195. Ticket list and detail

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system.
    - User has permissions to access the system.
    - User is at the machine information screen.
  - Post condition:
    - Success: User can view the list of fixing tickets of selected Serial Number.
    - Fail: When an error occurred it will show an error toast.
  - Business rules: N/A.

### 3.2.19.6. Mark Serial Number as maintain

- Function trigger: User clicks on “More Horizontal” icon in the serial number table.
- Function description:
  - Actors: web-staff.
  - Purpose: User want to change the status of selected Serial Number to maintain
- Screen layout:

**DANH SÁCH SERIAL NUMBER**

Số Serial	Ngày nhập	Tình trạng	Giá thuê	Trạng thái hoạt động	Thời gian thuê
MK-02-2024-00001	28-11-2024	100%	250.000 đ/ ngày	Còn hàng	chưa thuê
MK-02-2024-00002	28-11-2024	90%	238.000 đ/ ngày	Còn hàng	chưa thuê
MK-02-2024-00003	28-11-2024	90%	238.000 đ/ ngày	Còn hàng	chưa thuê
MK-02-2024-00004	28-11-2024	80%	200.000 đ/ ngày	Còn hàng	chưa thuê
MK-02-2024-00005	28-11-2024	65%	125.000 đ/ ngày	Còn hàng	chưa thuê

**Actions**

- Bộ phận
- Lịch sử kiểm tra/sửa chữa
- Lịch sử thuê máy
- Bảo trì máy**
- Dừng hoạt động

Figure 196. Machine Serial Number table screen

**DANH SÁCH SERIAL NUMBER**

Bạn có chắc chắn muốn bảo trì máy này?

Ghi chú: kiểm tra máy

Hủy Dừng hoạt động

Figure 197. Modal input

**DANH SÁCH SERIAL NUMBER**

Số Serial	Ngày nhập	Tình trạng	Giá thuê	Trạng thái hoạt động	Thời gian thuê
MK-02-2024-00001	28-11-2024	100%	250.000 đ/ ngày	<b>Đang bảo trì</b>	chưa thuê
MK-02-2024-00002	28-11-2024	90%	238.000 đ/ ngày	Còn hàng	chưa thuê
MK-02-2024-00003	28-11-2024	90%	238.000 đ/ ngày	Còn hàng	chưa thuê
MK-02-2024-00004	28-11-2024	80%	200.000 đ/ ngày	Còn hàng	chưa thuê
MK-02-2024-00005	28-11-2024	65%	125.000 đ/ ngày	Còn hàng	chưa thuê

Figure 198. Machine Serial Number table screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system.
    - User has permissions to access the system.
    - User is at the machine information screen.
  - Post condition:
    - Success: Users can view the status of the selected serial number changed to “Đang bảo trì”.
    - Fail: When adding an error it will show an error toast.
  - Business rules: BR-03.

### 3.2.19.7. Mark Serial Number as active from maintain

- Function trigger: User clicks on “More Horizontal” icon in the serial number table.
- Function description:
  - Actors: web-staff.
  - Purpose: User want to change the status of selected Serial Number to maintain
- Screen layout:

Số Serial	Ngày nhập	Tình trạng	Giá thuê	Trạng thái hoạt động	Thời gian thuê
MK-02-2024-00001	28-11-2024	100%	250.000 đ/ngày	<span style="background-color: orange; color: white; padding: 2px;">Đang bảo trì</span>	chưa thuê
MK-02-2024-00002	28-11-2024	90%	238.000 đ/ngày	<span style="background-color: green; color: white; padding: 2px;">Còn hàng</span>	chưa thuê
MK-02-2024-00003	28-11-2024	90%	238.000 đ/ngày	<span style="background-color: green; color: white; padding: 2px;">Còn hàng</span>	chưa thuê
MK-02-2024-00004	28-11-2024	80%	200.000 đ/ngày	<span style="background-color: green; color: white; padding: 2px;">Còn hàng</span>	chưa thuê
MK-02-2024-00005	28-11-2024	65%	125.000 đ/ngày	<span style="background-color: green; color: white; padding: 2px;">Còn hàng</span>	chưa thuê

Figure 199. Machine Serial Number table screen

Figure 200. Modal input

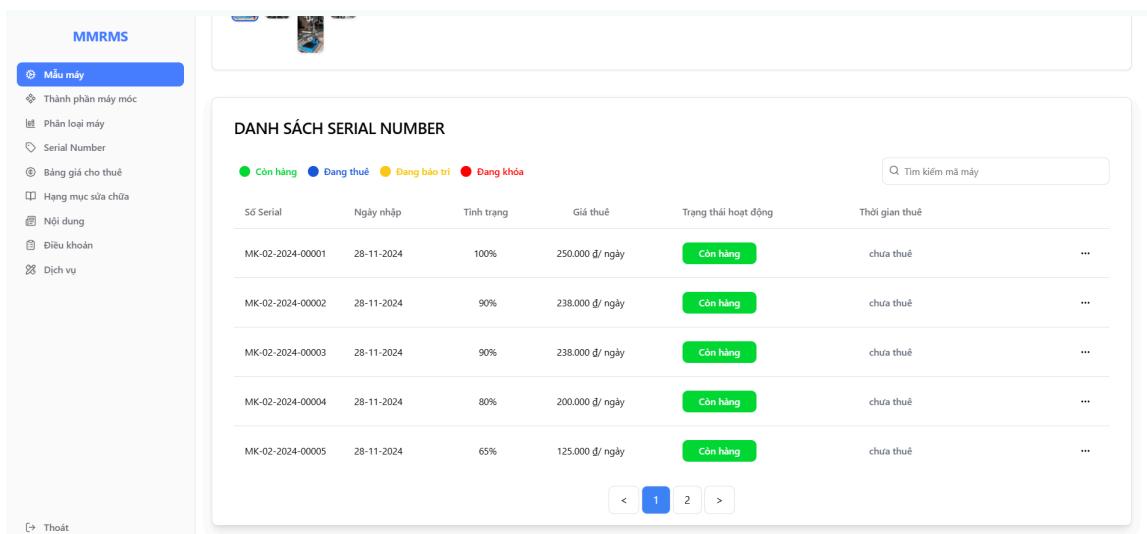


Figure 201. Machine Serial Number table screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system.
    - User has permissions to access the system.
    - User is at the machine information screen.
  - Post condition:
    - Success: Users can view the status of the selected serial number changed to “Còn hàng”.
    - Fail: When adding an error it will show an error toast.
  - Business rules: BR-03.

### 3.2.19.8. Disable Serial Number

- Function trigger: User clicks on “More Horizontal” icon in the serial number table.
- Function description:
  - Actors: web-staff.
  - Purpose: User wants to disable the selected Serial Number.
- Screen layout:

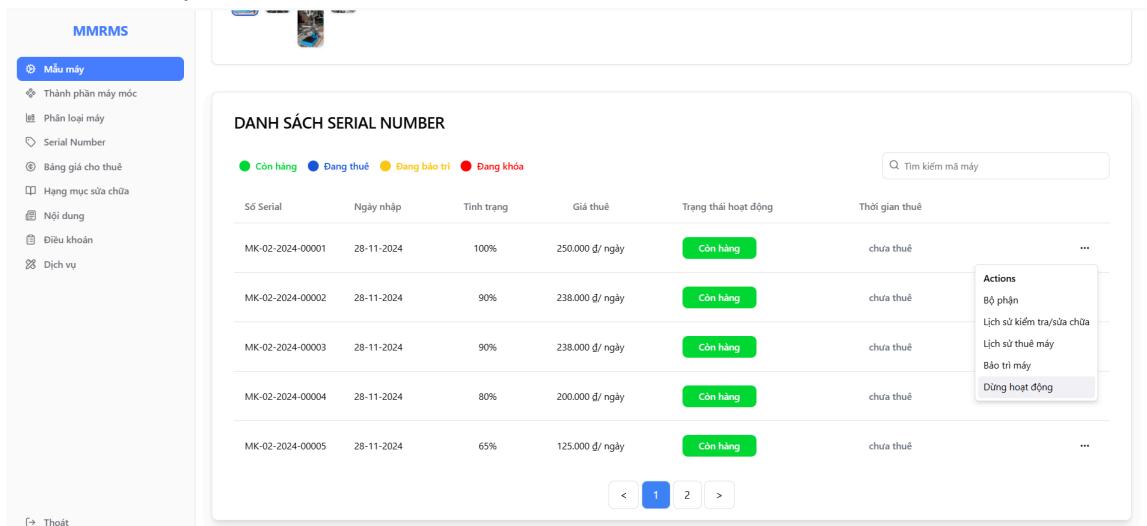


Figure 202. Machine Serial Number table screen

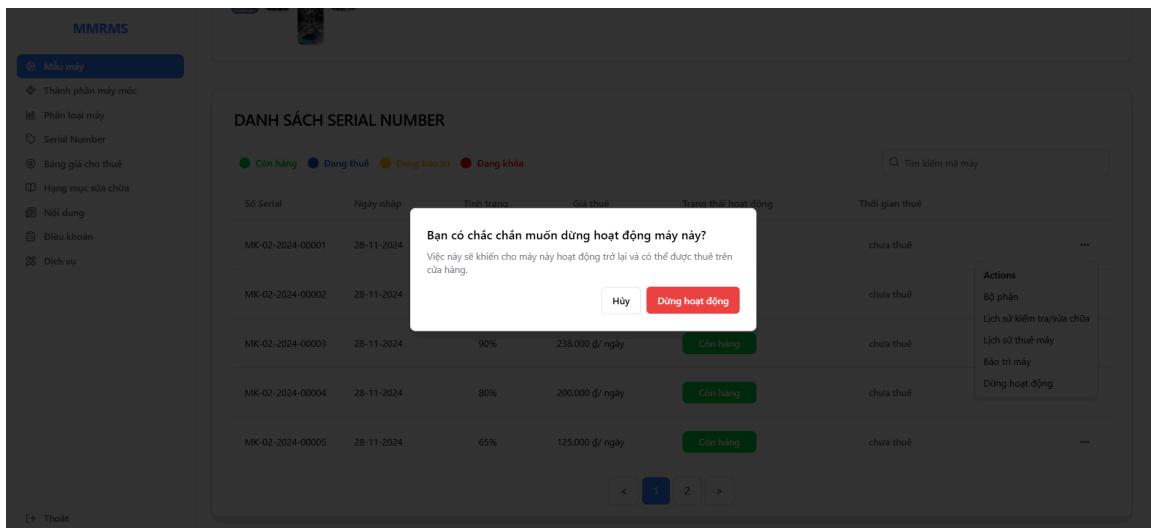


Figure 203. Confirm dialog

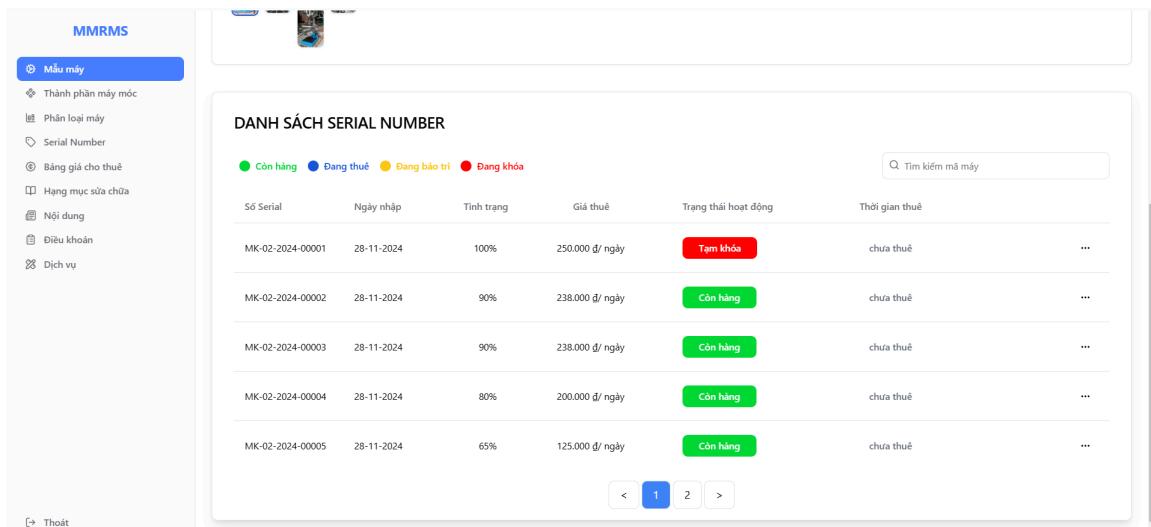


Figure 204. Machine Serial Number table screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system.
    - User has permissions to access the system.
    - User is at the machine information screen.
    - The selected serial number is available and not be rented or maintain
  - Post condition:
    - Success: Users can view the status of the selected serial number changed to “Tạm khóa”.
    - Fail: When adding an error it will show an error toast.
  - Business rules: BR-09.

### 3.2.20 Manage Term

#### 3.2.20.1. View Term List

- Function trigger: User clicks on “Điều khoản” button in the sidebar.
- Function description:
  - Actors: web-staff.
  - Purpose: User wants to view the list of terms in the system.
- Screen layout:

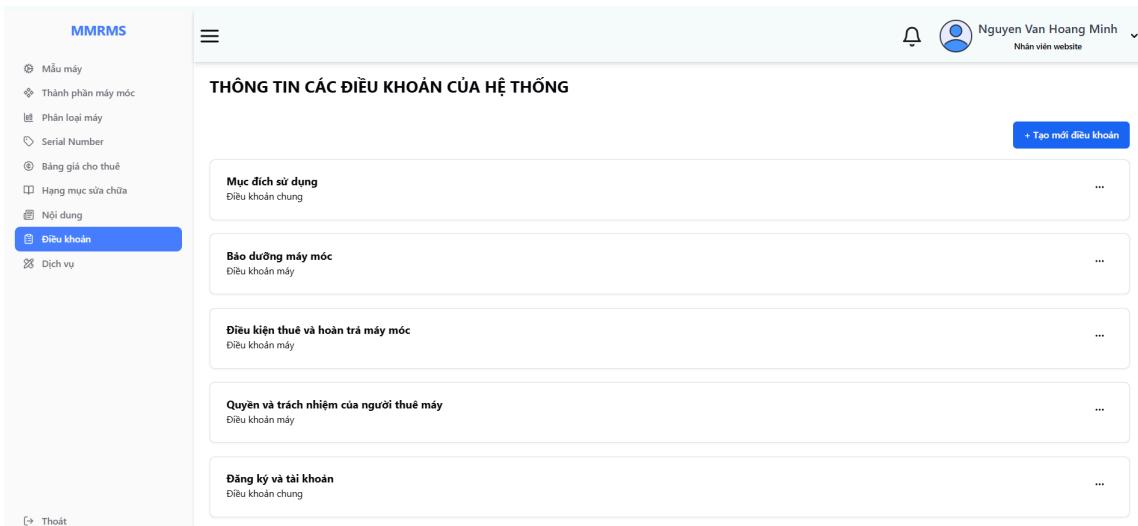


Figure 205. Term list

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system.
    - User has permissions to access the system.
  - Post condition:
    - Success: User can view the list of terms that exist in the system.
    - Fail: When an error occurs in loading, it will show an error toast.
  - Business rules: N/A.

#### 3.2.20.2. View Term Detail

- Function trigger: User clicks on “More horizontal” icon in the selected term.
- Function description:
  - Actors: web-staff.
  - Purpose: Users want to view the information of terms in the system.
- Screen layout:

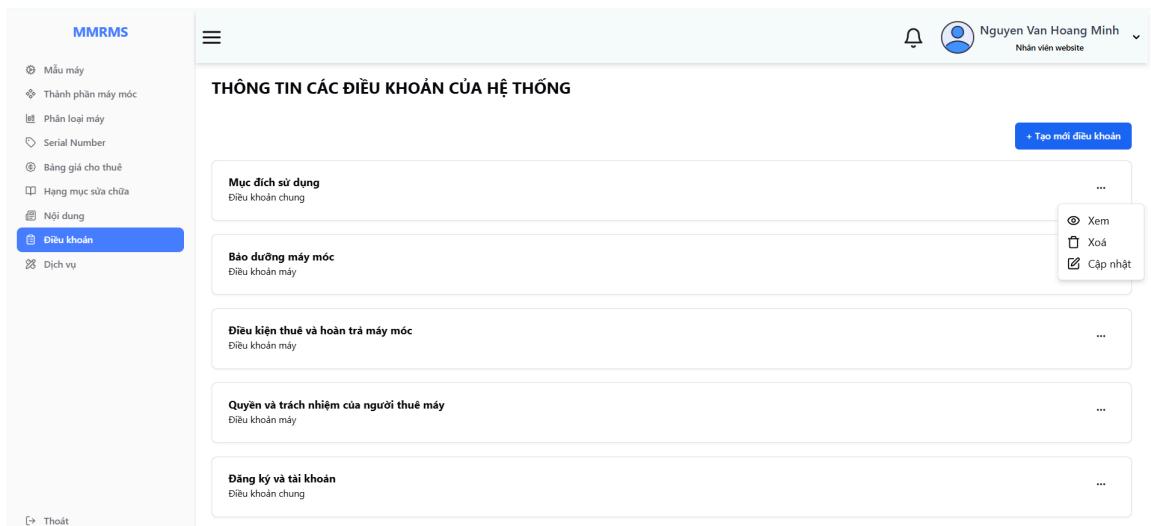


Figure 206. Term Detail

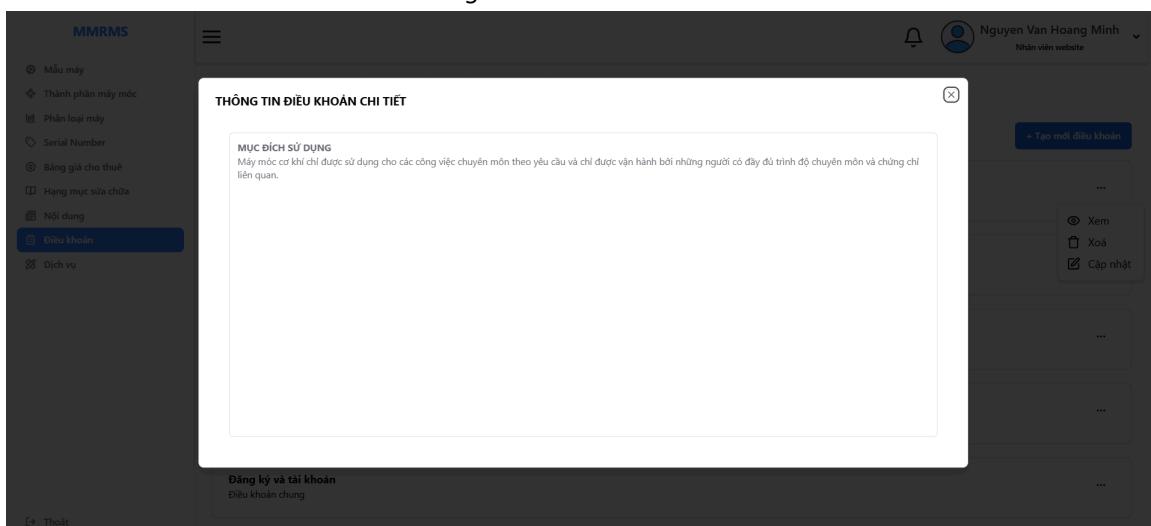


Figure 207. Term Detail

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system.
    - User has permissions to access the system.
  - Post condition:
    - Success: User can view the information of the term in the system.
    - Fail: When an error in loading, it will show an error toast.
  - Business rules: N/A.

### 3.2.20.3. Update Term Detail

- Function trigger: User clicks on “More horizontal” icon in the selected term.
- Function description:
  - Actors: web-staff.
  - Purpose: Users want to update the information of terms in the system.
- Screen layout:

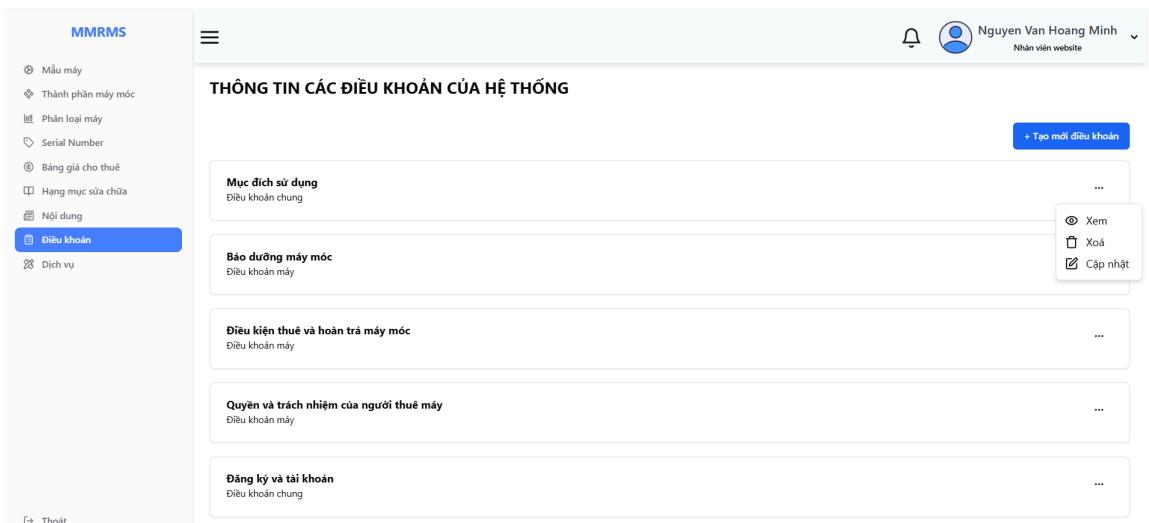


Figure 208. Update Term Detail

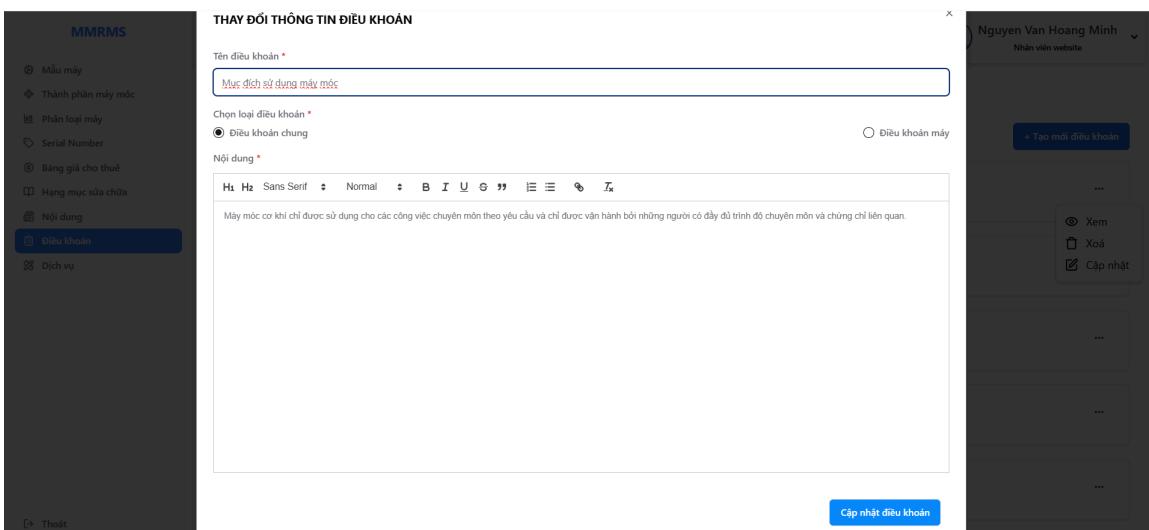


Figure 209. Update Term Detail

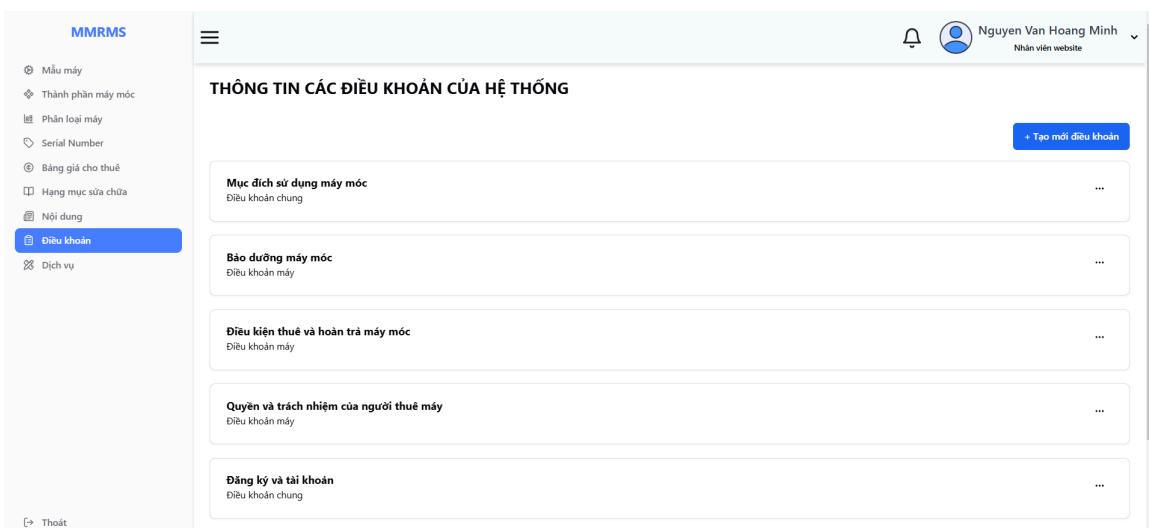


Figure 210. Update Term Detail

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system.
    - User has permissions to access the system.
  - Post condition:
    - Success: User can view the information of the term with new data.
    - Fail: When an error in updating, it will show an error toast.
  - Business rules: BR-03.

### 3.2.20.4. Create Term

- Function trigger: User clicks on “More horizontal” icon in the selected term.
- Function description:
  - Actors: web-staff.
  - Purpose: Users want to create a new term.
- Screen layout:

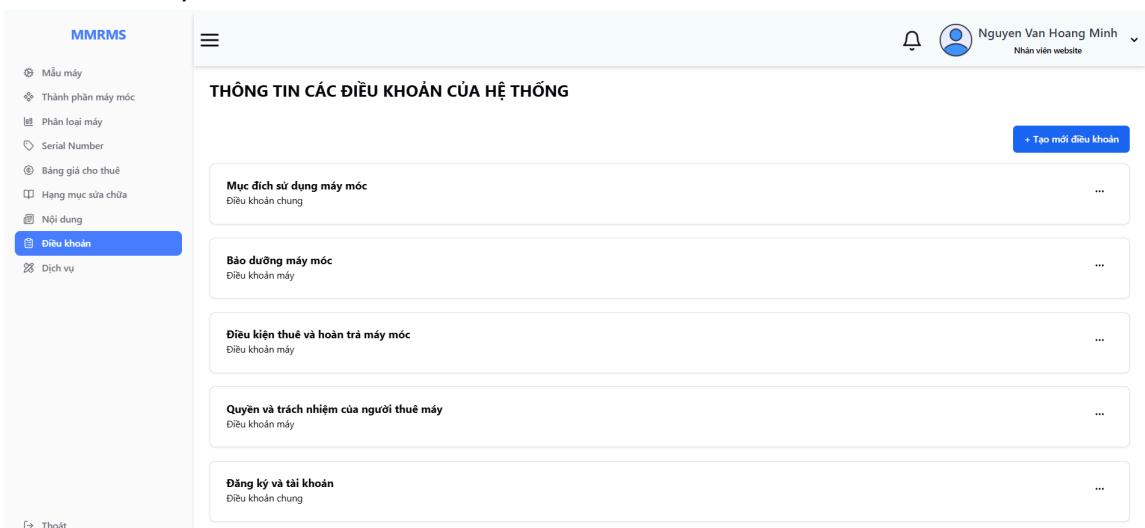


Figure 211. Term list

Figure 212. Create modal

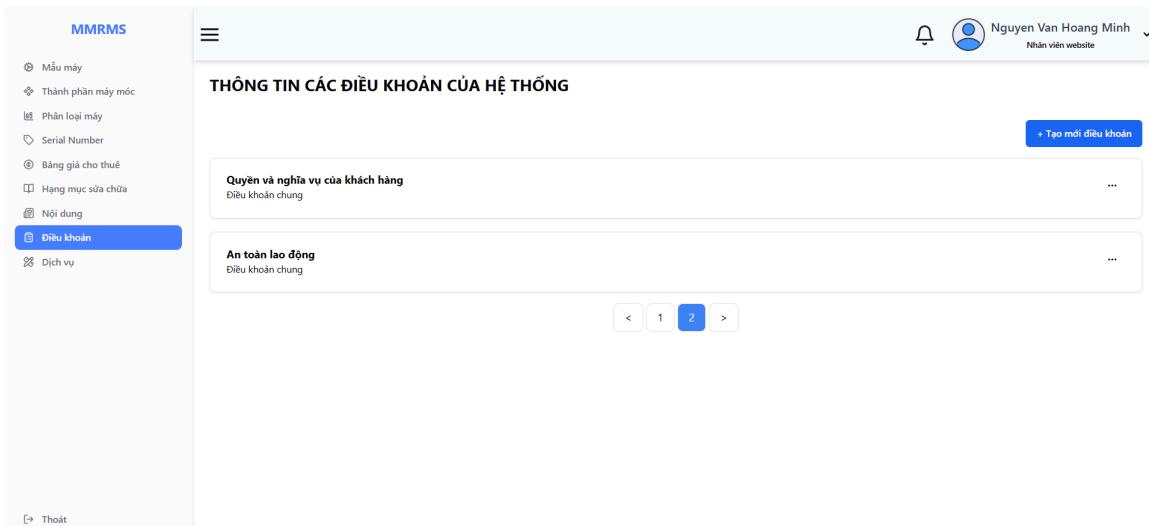


Figure 213. Term list

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system.
    - User has permissions to access the system.
  - Post condition:
    - Success: User can view the new term added into the list.
    - Fail: When an error in creating, it will show an error toast.
  - Business rules: N/A.

### 3.2.20.5. Delete Term

- Function trigger: User clicks on “More horizontal” icon in the selected term.
- Function description:
  - Actors: web-staff.
  - Purpose: Users want to delete the term.
- Screen layout:

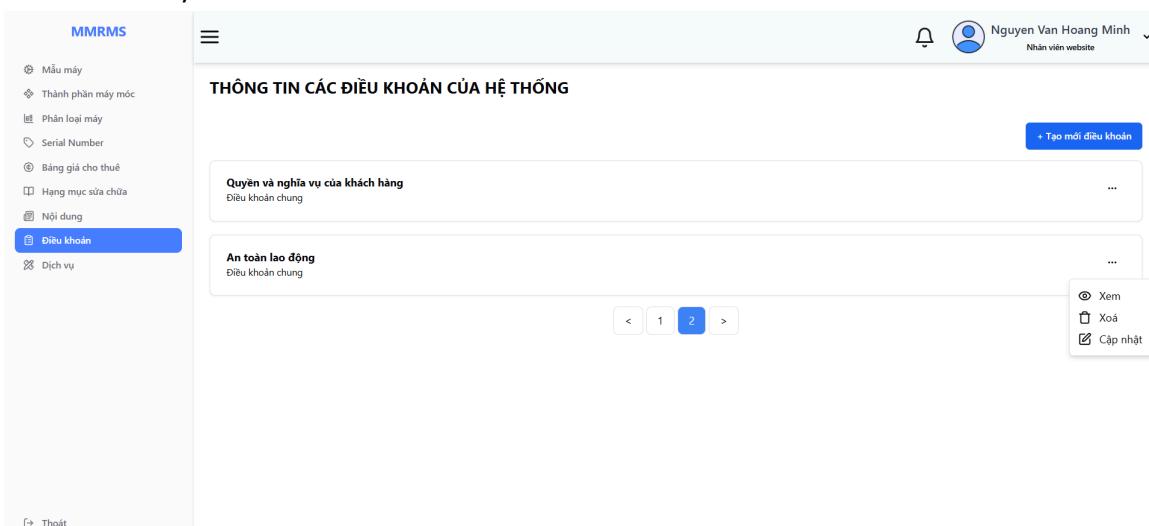


Figure 214. Term list

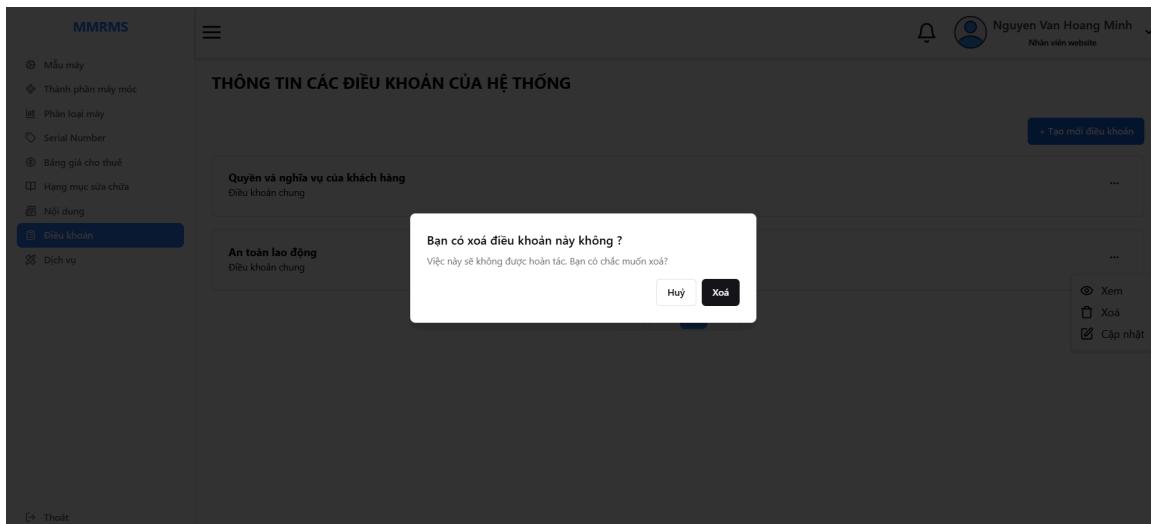


Figure 215. Delete alert modal

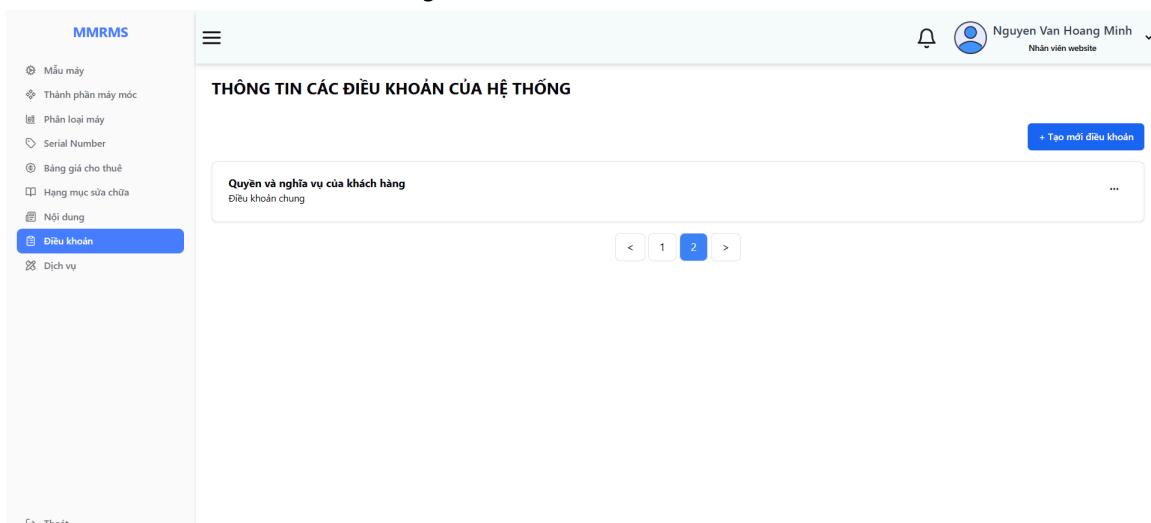


Figure 216. Term list

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system.
    - User has permissions to access the system.
  - Post condition:
    - Success: User can remove the term from the list
    - Fail: When an error in deleting, it will show an error toast.
  - Business rules: N/A.

### 3.2.21 Manage Rental Price Table

#### 3.2.21.1. Staff View rental price table

- Function trigger: User clicks on the “Bảng giá cho thuê” button in the sidebar.
- Function description:
  - Actors: web-staff.
  - Purpose: Users want to view the rental price of machines.
- Screen layout:

The screenshot shows a web-based application interface for MMRMS. On the left, there is a sidebar with navigation links: Mẫu máy, Thành phần máy móc, Phân loại máy, Serial Number, and Bảng giá cho thuê (which is highlighted in blue). Below these are links for Hang mục sửa chữa, Nội dung, Điều khoản, and Dịch vụ. At the bottom of the sidebar is a 'Thoát' (Logout) button. The main content area has a header 'BẢNG GIÁ CHO THUÊ MÁY MÓC TRONG HỆ THỐNG MMRMS'. To the right of the header is a user profile for 'Nguyen Van Hoang Minh' and a download button labeled 'Tải xuống bảng giá'. The central part of the screen displays a table titled 'Máy Phay CNC Hyundai-Wia F500VM 2015'. The table has columns for 'Tình trạng' (Status), '1 ngày' (1 day), '30 ngày' (30 days), '60 ngày' (60 days), '90 ngày' (90 days), '180 ngày' (180 days), and '360 ngày' (360 days). The table lists various percentage values (100%, 95%, 90%, 85%, 80%, 75%, 70%, 65%, 60%) and their corresponding rental prices in Vietnamese Dong.

	Tình trạng	1 ngày	30 ngày	60 ngày	90 ngày	180 ngày	360 ngày
Máy Phay CNC Hyundai- Wia F500VM 2015	100%	850.000 đ	25.500.000 đ	51.000.000 đ	76.500.000 đ	153.000.000 đ	306.000.000 đ
	95%	833.000 đ	24.990.000 đ	49.980.000 đ	74.970.000 đ	149.940.000 đ	299.880.000 đ
	90%	807.500 đ	24.225.000 đ	48.450.000 đ	72.675.000 đ	145.350.000 đ	290.700.000 đ
	85%	765.000 đ	22.950.000 đ	45.900.000 đ	68.850.000 đ	137.700.000 đ	275.400.000 đ
	80%	680.000 đ	20.400.000 đ	40.800.000 đ	61.200.000 đ	122.400.000 đ	244.800.000 đ
	75%	595.000 đ	17.850.000 đ	35.700.000 đ	53.550.000 đ	107.100.000 đ	214.200.000 đ
	70%	510.000 đ	15.300.000 đ	30.600.000 đ	45.900.000 đ	91.800.000 đ	183.600.000 đ
	65%	425.000 đ	12.750.000 đ	25.500.000 đ	38.250.000 đ	76.500.000 đ	153.000.000 đ
	60%	340.000 đ	10.200.000 đ	20.400.000 đ	30.600.000 đ	61.200.000 đ	122.400.000 đ

Figure 217. Rental price list

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system.
    - User has permissions to access the system.
  - Post condition:
    - Success: User can view the list of rental price of each machine
    - Fail: When an error in loading, it will show an error toast.
  - Business rules: N/A.

### 3.2.21.2. Staff Export rental price table

- Function trigger: User clicks on “Tải xuống bảng giá” button on the top left.
- Function description:
  - Actors: web-staff.
  - Purpose: Users want to export the rental price of machineries.
- Screen layout:

This screenshot is identical to Figure 217, showing the rental price list for the 'Máy Phay CNC Hyundai-Wia F500VM 2015' model. The layout and data in the table are the same, displaying various status levels and their corresponding daily, monthly, and yearly rental rates.

Figure 218. Rental price list

Tình trạng	1 ngày	30 ngày	60 ngày	90 ngày	180 ngày	360 ngày
100%	850,000	25,500,000	51,000,000	76,500,000	153,000,000	306,000,000
95%	833,000	24,990,000	49,980,000	74,970,000	149,940,000	299,880,000
90%	807,500	24,225,000	48,450,000	72,675,000	145,350,000	290,700,000
85%	765,000	22,950,000	45,900,000	68,850,000	137,700,000	275,400,000
80%	680,000	20,400,000	40,800,000	61,200,000	122,400,000	244,800,000
75%	595,000	17,850,000	35,700,000	53,550,000	107,100,000	214,200,000
70%	510,000	15,300,000	30,600,000	45,900,000	91,800,000	183,600,000
65%	425,000	12,750,000	25,500,000	38,250,000	76,500,000	153,000,000
60%	340,000	10,200,000	20,400,000	30,600,000	61,200,000	122,400,000

Figure 219. Rental price excel

- Function Detail:

  - Pre-condition:

    - User is successfully logs into the system.
    - User has permissions to access the system.

  - Post condition:

    - Success: User can download the rental price to the excel file.
    - Fail: When an error in loading, it will show an error toast.

  - Business rules: N/A.

### 3.2.21.1. Customer View rental price table

- Function trigger: User clicks on the “Bảng giá” button in the navbar.

- Function description:

  - Actors: Customer/ guest.
  - Purpose: Users want to view the rental price of machineries.

- Screen layout:

Tình trạng	1 ngày	30 ngày	60 ngày	90 ngày	180 ngày	360 ngày
100%	850.000 đ	25,500,000 đ	51,000,000 đ	76,500,000 đ	153,000,000 đ	306,000,000 đ
95%	833.000 đ	24,990,000 đ	49,980,000 đ	74,970,000 đ	149,940,000 đ	299,880,000 đ
90%	807,500 đ	24,225,000 đ	48,450,000 đ	72,675,000 đ	145,350,000 đ	290,700,000 đ
85%	765,000 đ	22,950,000 đ	45,900,000 đ	68,850,000 đ	137,700,000 đ	275,400,000 đ
80%	680,000 đ	20,400,000 đ	40,800,000 đ	61,200,000 đ	122,400,000 đ	244,800,000 đ
75%	595,000 đ	17,850,000 đ	35,700,000 đ	53,550,000 đ	107,100,000 đ	214,200,000 đ
70%	510,000 đ	15,300,000 đ	30,600,000 đ	45,900,000 đ	91,800,000 đ	183,600,000 đ
65%	425,000 đ	12,750,000 đ	25,500,000 đ	38,250,000 đ	76,500,000 đ	153,000,000 đ

Figure 220. Rental price list

- Function Detail:

- Pre-condition:
  - User is successfully logs into the system.
  - User has permissions to access the system.
- Post condition:
  - Success: User can view the list of rental price of each machine
  - Fail: When an error in loading, it will show an error toast.
- Business rules: N/A.

### 3.2.21.2. Staff Export rental price table

- Function trigger: User clicks on “Tải xuống bảng giá” button on the top left.
- Function description:
  - Actors: web-staff.
  - Purpose: Users want to export the rental price of machinery.
- Screen layout:

BÀNG GIÁ CHO THUÊ MÁY MÓC TRONG HỆ THỐNG MMRMS						
Máy Phay CNC Hyundai-Wia F500VM 2015		F500VM-2015				
Tình trạng	1 ngày	30 ngày	60 ngày	90 ngày	180 ngày	360 ngày
100%	850.000 đ	25.500.000 đ	51.000.000 đ	76.500.000 đ	153.000.000 đ	306.000.000 đ
95%	833.000 đ	24.990.000 đ	49.980.000 đ	74.970.000 đ	149.940.000 đ	299.880.000 đ
90%	807.500 đ	24.225.000 đ	48.450.000 đ	72.675.000 đ	145.350.000 đ	290.700.000 đ
85%	765.000 đ	22.950.000 đ	45.900.000 đ	68.850.000 đ	137.700.000 đ	275.400.000 đ
80%	680.000 đ	20.400.000 đ	40.800.000 đ	61.200.000 đ	122.400.000 đ	244.800.000 đ
75%	595.000 đ	17.850.000 đ	35.700.000 đ	53.550.000 đ	107.100.000 đ	214.200.000 đ
70%	510.000 đ	15.300.000 đ	30.600.000 đ	45.900.000 đ	91.800.000 đ	183.600.000 đ
65%	425.000 đ	12.750.000 đ	25.500.000 đ	38.250.000 đ	76.500.000 đ	153.000.000 đ

Figure 221. Rental price list

Bảng giá cho thuê máy móc - Mẫu máy: Máy Phay CNC Hyundai-Wia F500VM 2015						
Địa chỉ: Lô E2a-7, Đường D1, D. D1, Long Thành Mỹ, Thành Phố Thủ Đức, Hồ Chí Minh Số điện thoại: (+84) 123 456 789						
Tình trạng	1 ngày	30 ngày	60 ngày	90 ngày	180 ngày	360 ngày
100%	850.000	25.500.000	51.000.000	76.500.000	153.000.000	306.000.000
95%	833.000	24.990.000	49.980.000	74.970.000	149.940.000	299.880.000
90%	807.500	24.225.000	48.450.000	72.675.000	145.350.000	290.700.000
85%	765.000	22.950.000	45.900.000	68.850.000	137.700.000	275.400.000
80%	680.000	20.400.000	40.800.000	61.200.000	122.400.000	244.800.000
75%	595.000	17.850.000	35.700.000	53.550.000	107.100.000	214.200.000
70%	510.000	15.300.000	30.600.000	45.900.000	91.800.000	183.600.000
65%	425.000	12.750.000	25.500.000	38.250.000	76.500.000	153.000.000
60%	340.000	10.200.000	20.400.000	30.600.000	61.200.000	122.400.000

Figure 222. Rental price excel

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system.
    - User has permissions to access the system.
  - Post condition:
    - Success: User can download the rental price to the excel file.
    - Fail: When an error in loading, it will show an error toast.
  - Business rules: N/A.

### 3.3 Mobile Application

#### 3.3.1 Manage Delivery Task

##### 3.3.1.1 View Delivery Task List

- Function trigger: Technical Staff clicks on “Vận chuyển” tab on menu section mobile.
- Function description:
  - Actors: Technical Staff.
  - Purpose: Users want to view their delivery task list in the system.
- Screen layout:

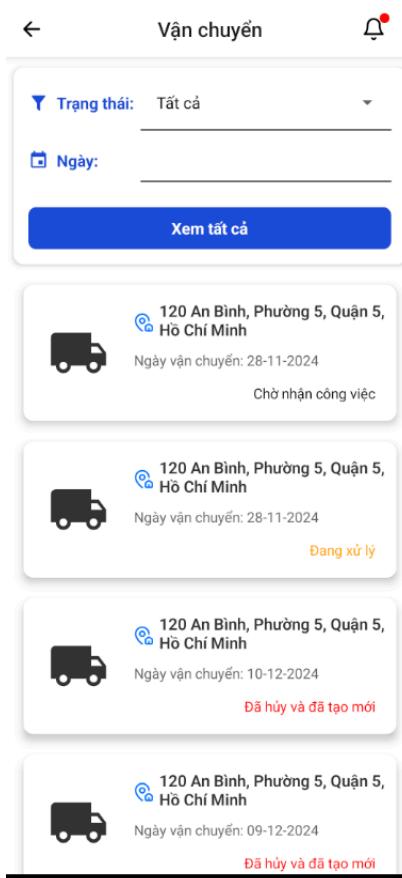


Figure 223. View Machine Task List in Mobile screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system with technical staff in mobile.
    - Users have permissions to access the system in mobile.

- Post condition:
  - Success: Users can view delivery tasks in the system.
  - Fail: When loading data with error will show an error toast.
- Business rules: N/A.

### 3.3.1.2 View Delivery Task Detail

- Function trigger: Technical Staff clicks on item which user chooses in mobile.
- Function description:
  - Actors: Technical Staff.
  - Purpose: Users want to view their delivery task in detail in the system.
- Screen layout:

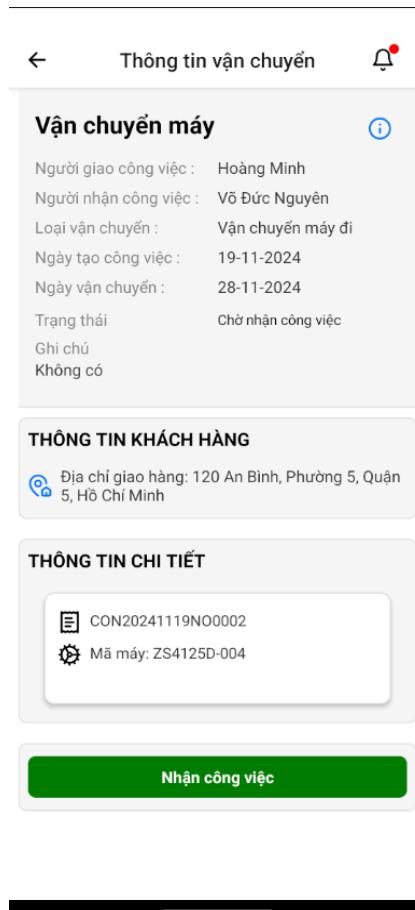


Figure 224. Task Detail : Waiting for job

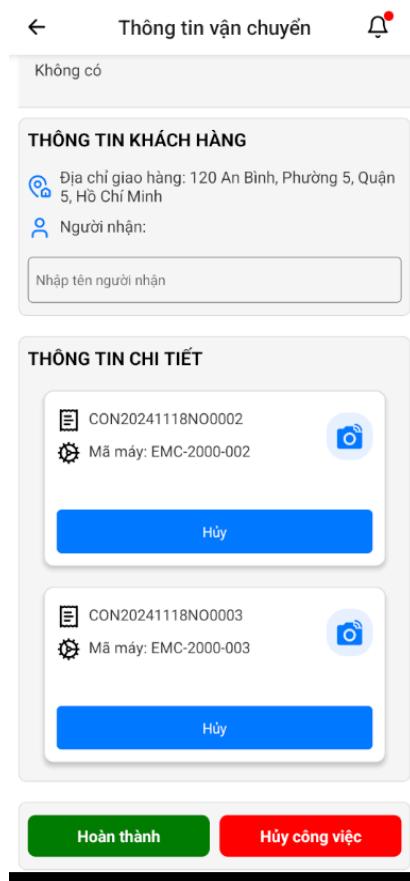


Figure 225. Task Detail : Wait for shipping to complete

← Thông tin vận chuyển ⚡

**Vận chuyển máy** ⓘ

Người giao công việc : Hoàng Minh  
Người nhận công việc : Võ Đức Nguyên  
Loại vận chuyển : Vận chuyển máy đi  
Ngày tạo công việc : 19-11-2024  
Ngày vận chuyển : 09-12-2024  
Trạng thái : Đã hủy và đã tạo mới  
Ghi chú : oooooooooooooooo

**THÔNG TIN KHÁCH HÀNG**

Địa chỉ giao hàng: 120 An Bình, Phường 5, Quận 5, Hồ Chí Minh

**THÔNG TIN CHI TIẾT**

**Lô 1:** CON20241118NO0002  
Mã máy: EMC-2000-002  
Ghi chú lỗi: oooooooooooooooo

**Lô 2:** CON20241118NO0003  
Mã máy: EMC-2000-003  
Ghi chú lỗi: oooooooooooooooo

Figure 226. Task Detail : There was a problem with machine delivery

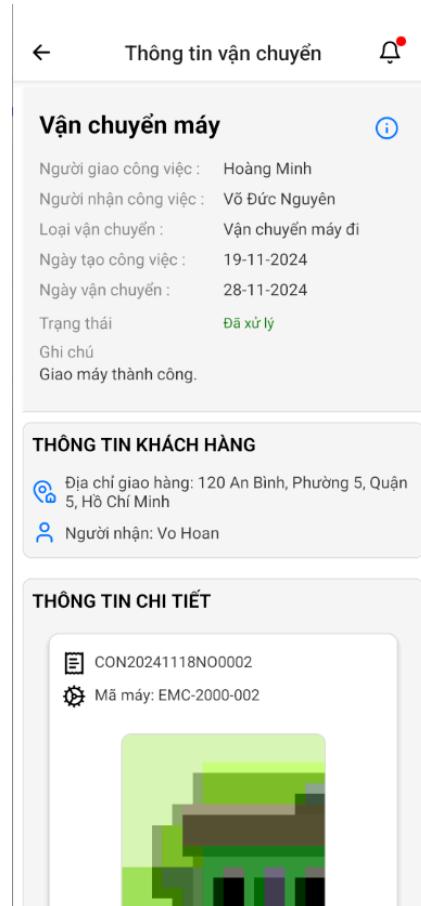


Figure 227. Task Detail : Success

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system with technical staff in mobile.
    - Users have permissions to access the system in mobile.
    - User is in “Vận chuyển” section
  - Post condition:
    - Success: User can view delivery task details in the system.
    - Fail: When loading data with error will show an error toast.
  - Business rules: N/A.

### 3.3.1.3 Receive Delivery Task

- Function trigger: Technical Staff clicks on “Nhận công việc” button in mobile.
- Function description:
  - Actors: Technical Staff.
  - Purpose: Users want to receive their delivery task in the system.
- Screen layout:

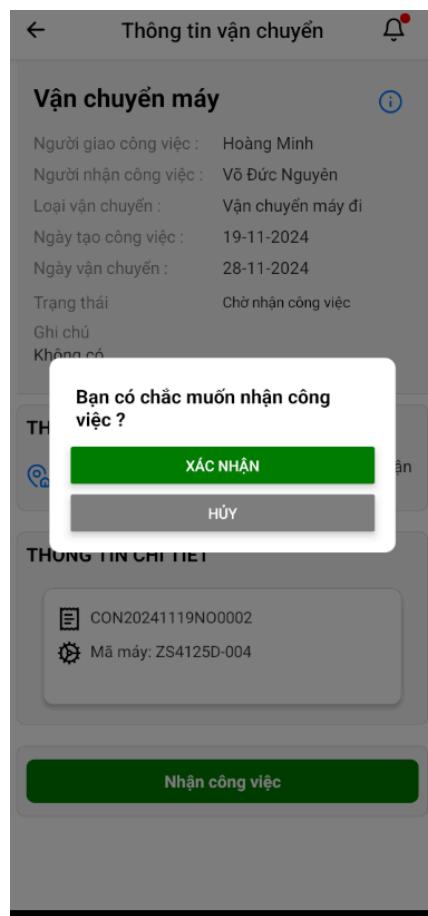
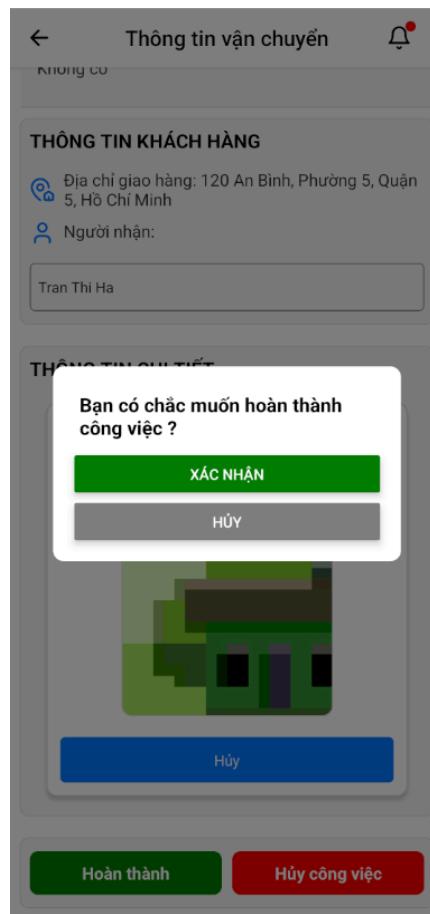


Figure 228. Receive Delivery Task in Mobile screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system with technical staff in mobile.
    - Users have permissions to access the system in mobile.
    - User choose task with status “Chờ nhận công việc”.
  - Post condition:
    - Success: Users can receive delivery tasks in the system.
    - Fail: When updating data with error will show an error toast.
  - Business rules: BR-48.

#### 3.3.1.4 Finish Delivery Task

- Function trigger: Technical Staff clicks on the “Hoàn thành” button on mobile.
- Function description:
  - Actors: Technical Staff.
  - Purpose: Users want to finish their delivery task in the system.
- Screen layout:



*Figure 229. Finish Delivery Task in Mobile screen*

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system in mobile.
    - Users have permissions to access the system in mobile.
  - Post condition:
    - Success: User can finish the delivery task in the system.
    - Fail: When updating data with error will show an error toast.
  - Business rules: BR-47.

### 3.3.1.5 Fail Delivery Task

- Function trigger: Technical Staff clicks on "Hủy công việc" button in mobile.
- Function description:
  - Actors: Technical Staff.
  - Purpose: Users want to cancel their delivery task in the system.
- Screen layout:

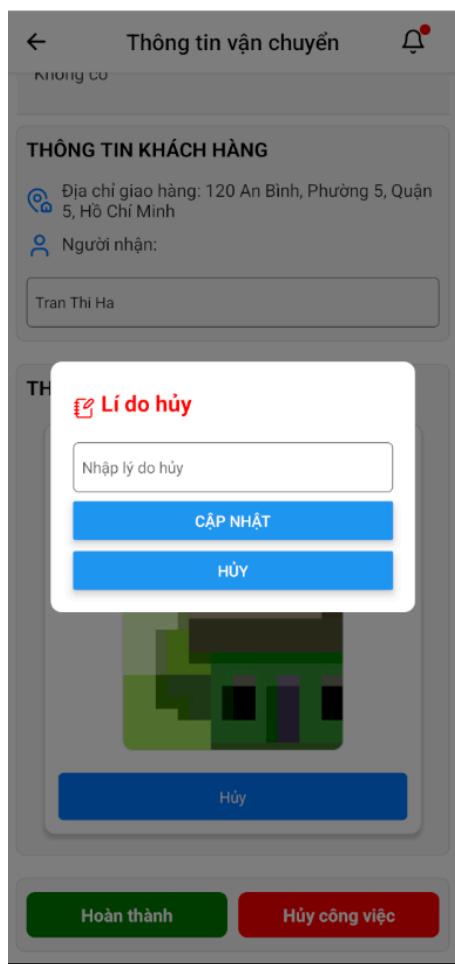


Figure 230. Fail Delivery Task in Mobile screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system with technical staff in mobile.
    - Users have permissions to access the system in mobile.
    - User choose task with status “Đang xử lý”.
  - Post condition:
    - Success: Users can cancel delivery tasks in the system.
    - Fail: When updating data with error will show an error toast.
  - Business rules: BR-49.

### 3.3.2 Manage Machine Task

#### 3.3.2.1 View Machine Task List

- Function trigger: Technical Staff clicks on “Kiểm tra” tab on menu section mobile.
- Function description:
  - Actors: Technical Staff.
  - Purpose: Users want to view their machine task list in the system.
- Screen layout:

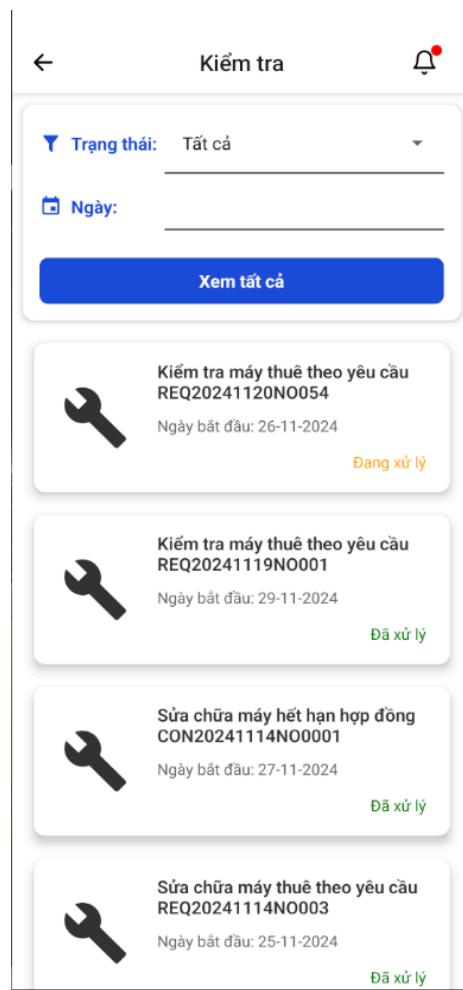


Figure 231. Machine Task in Mobile screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system with technical staff in mobile.
    - Users have permissions to access the system in mobile.
  - Post condition:
    - Success: Users can view machine tasks in the system.
    - Fail: When loading data with error will show an error toast.
  - Business rules: N/A.

### 3.3.2.2 View Machine Task Detail

- Function trigger: Technical Staff clicks on item which user chooses in mobile.
- Function description:
  - Actors: Technical Staff.
  - Purpose: Users want to view their machine task details in the system.
- Screen layout:

← Thông tin kiểm tra ⌂

cầu REQ20241119NO001 ⓘ

Người giao công việc :	Hoàng Minh
Người nhận công việc :	Võ Đức Nguyên
Loại công việc :	Kiểm tra máy thuê
Ngày tạo công việc :	19-11-2024
Ngày bắt đầu :	29-11-2024
Ngày hoàn thành :	19-11-2024
Trạng thái	Đã xử lý

**THÔNG TIN KHÁCH HÀNG**

CON20241115NO0004  
Mã máy: Stuter\_S33\_001  
Địa chỉ giao hàng: 70 VĨNH HỘI, Phường 4, Quận 4, Hồ Chí Minh

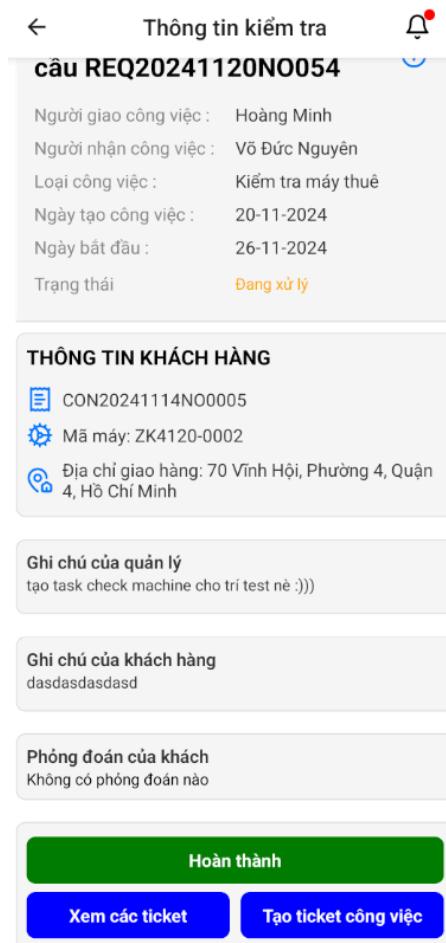
Ghi chú của quản lý  
Test máy giùm cái

Ghi chú của khách hàng

Phỏng đoán của khách

Nhiệt độ hoạt động      Tốc độ làm sản phẩm  
động cơ

Figure 232. Machine task detail : Done

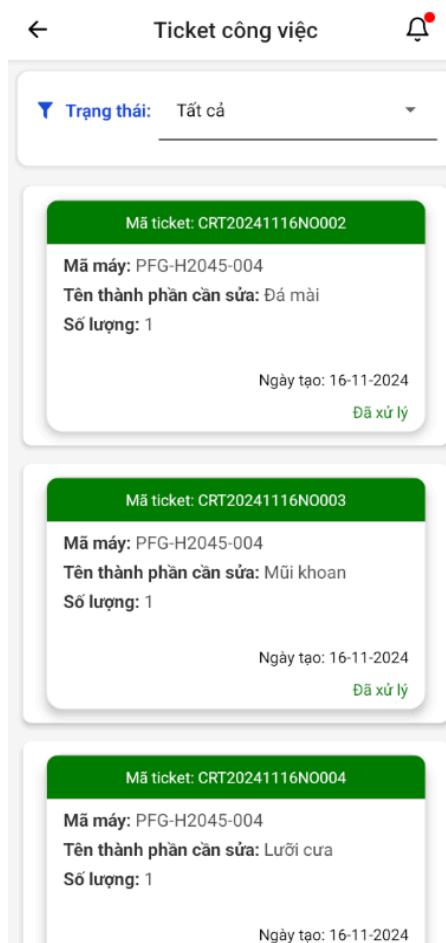


*Figure 233. Machine task detail : Processing*

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system with technical staff in mobile.
    - Users have permissions to access the system in mobile.
    - User is in “Kiểm tra” section
  - Post condition:
    - Success: User can view machine task details in the system.
    - Fail: When loading data with error will show an error toast.
  - Business rules: N/A.

### 3.3.2.3 View Ticket List of Machine Task

- Function trigger: Technical Staff clicks on “Xem các ticket” on mobile.
- Function description:
  - Actors: Technical Staff.
  - Purpose: Users want to view their tickets of machine tasks in the system.
- Screen layout:



*Figure 234. Ticket List in Mobile screen*

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system with technical staff in mobile.
    - Users have permissions to access the system in mobile.
    - User is in machine task detail on any task
  - Post condition:
    - Success: Users can view tickets of machine tasks in the system.
    - Fail: When loading data with error will show an error toast.
  - Business rules: N/A.

#### 3.3.2.4 View Ticket Detail of Machine Task

- Function trigger: Technical Staff clicks on item which user chooses in mobile.
- Function description:
  - Actors: Technical Staff.
  - Purpose: Users want to view their ticket details in the system.
- Screen layout:

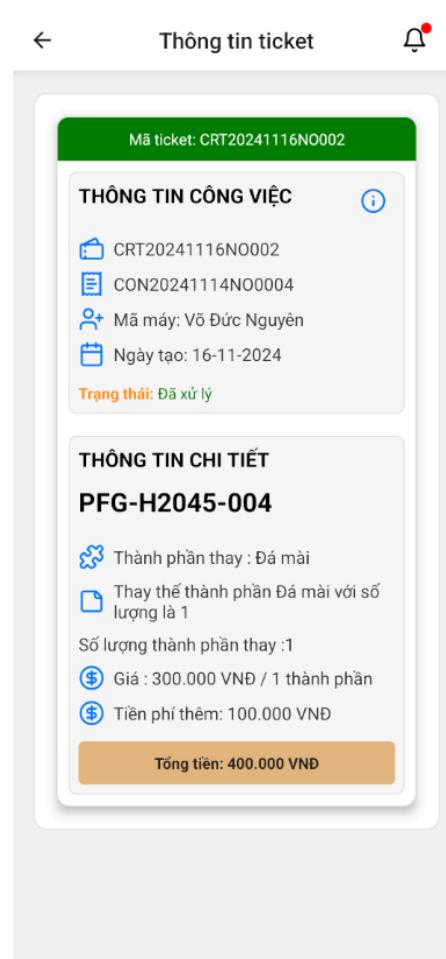


Figure 235. Ticket detail : Success

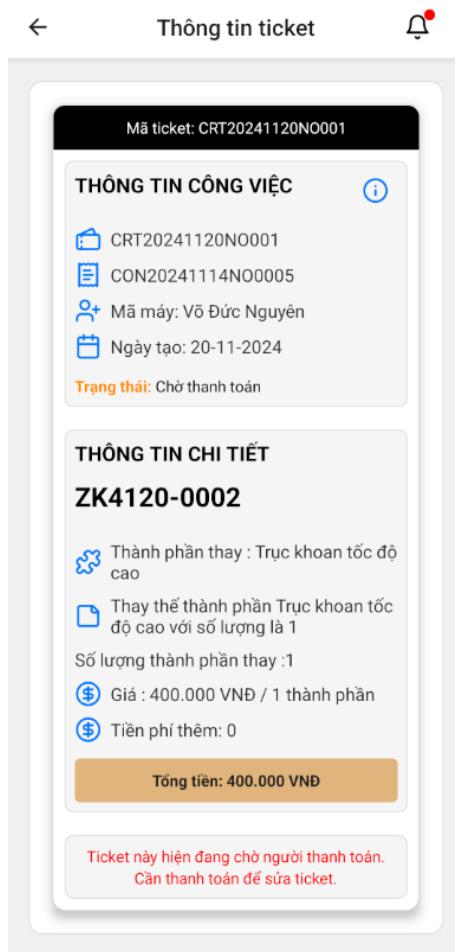
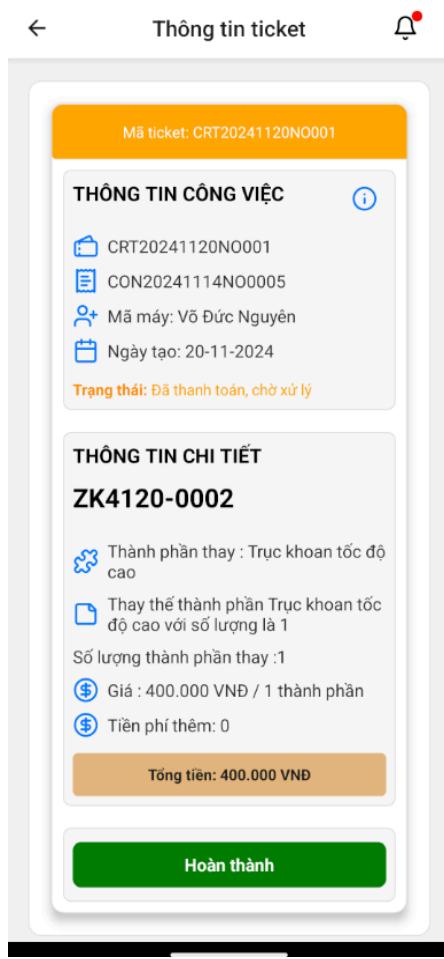


Figure 236. Ticket detail : Wait for payment



*Figure 237. Ticket detail: Wait for repairing*

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system with technical staff in mobile.
    - Users have permissions to access the system in mobile.
    - User is in the tickets list of the task screen.
  - Post condition:
    - Success: Users can view their ticket details in the system.
    - Fail: When loading data with error will show an error toast.
  - Business rules: BR-50.

### 3.3.2.5 Finish Ticket of Machine Task

- Function trigger: Technical Staff clicks on the “Hoàn thành” button on mobile.
- Function description:
  - Actors: Technical Staff.
  - Purpose: User want to finish their ticket in the system.
- Screen layout:

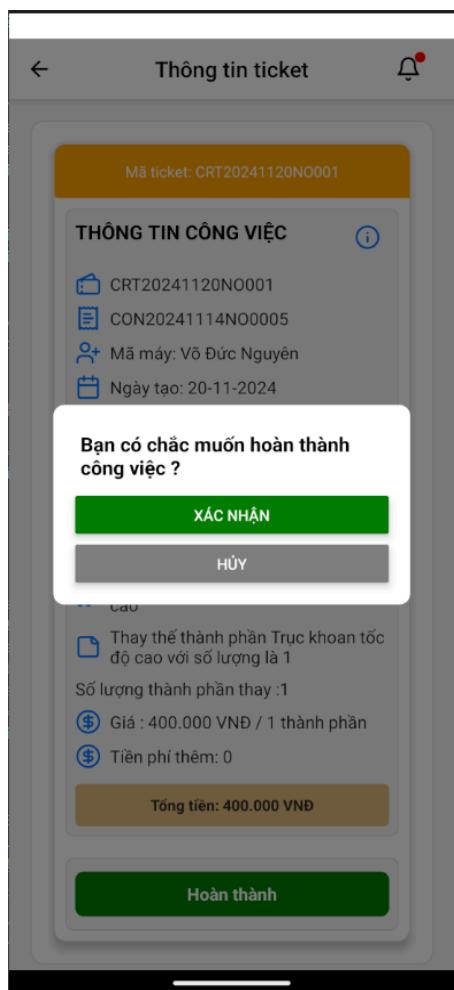


Figure 238. Finish Ticket in Mobile screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system with technical staff in mobile.
    - Users have permissions to access the system in mobile.
    - User is in ticket which status “Đã thanh toán, chờ xử lý”.
  - Post condition:
    - Success: Users can finish a ticket of a task in the system.
    - Fail: When updating data with error will show an error toast.
  - Business rules: N/A.

### 3.3.2.6 Finish Machine Task

- Function trigger: Technical Staff clicks on the “Hoàn thành” button on mobile.
- Function description:
  - Actors: Technical Staff.
  - Purpose: Users want to finish their machine task in the system.
- Screen layout:

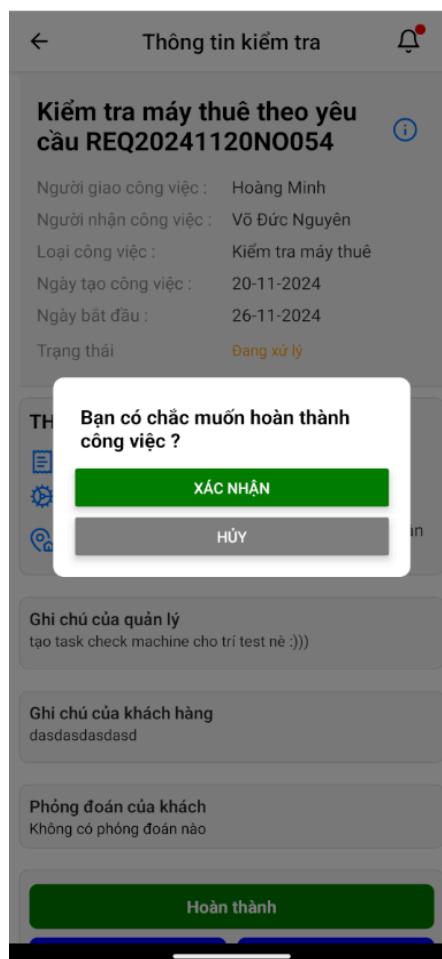


Figure 239. Finish Machine Task in Mobile screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system with technical staff in mobile.
    - Users have permissions to access the system in mobile.
    - User is in machine task with status “Đang xử lý”.
  - Post condition:
    - Success: Users can finish machine tasks in the system.
    - Fail: When updating data with error will show an error toast.
  - Business rules: BR-51.

### 3.3.2.7 Create Ticket of Machine Task

- Function trigger: Technical Staff clicks on “Tạo ticket công việc” button in mobile.
- Function description:
  - Actors: Technical Staff.
  - Purpose: Users want to create a ticket of their machine task to start repairing the machine in the system.
- Screen layout:

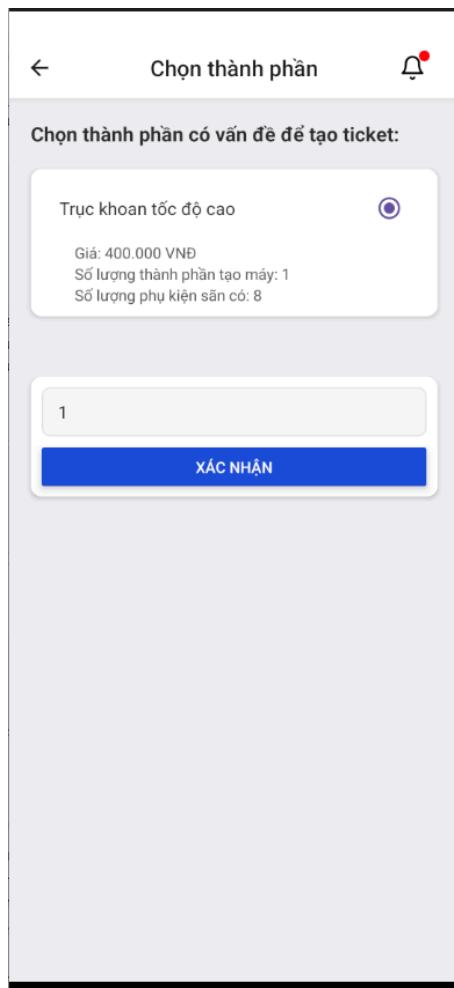


Figure 240. Create Ticket in Mobile screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system with technical staff in mobile.
    - Users have permissions to access the system in mobile.
    - User is in any machine task detail screen with status “Đang xử lý”.
  - Post condition:
    - Success: Users can create new tickets for machine tasks in the system.
    - Fail: When updating data with error will show an error toast.
  - Business rules: BR-52, BR-53.

### 3.3.2.8 Cancel Ticket of Machine Task

- Function trigger: Technical Staff clicks on “Hủy” button in mobile.
- Function description:
  - Actors: Technical Staff.
  - Purpose: Users want to cancel tickets for their machine task in the system.
- Screen layout:

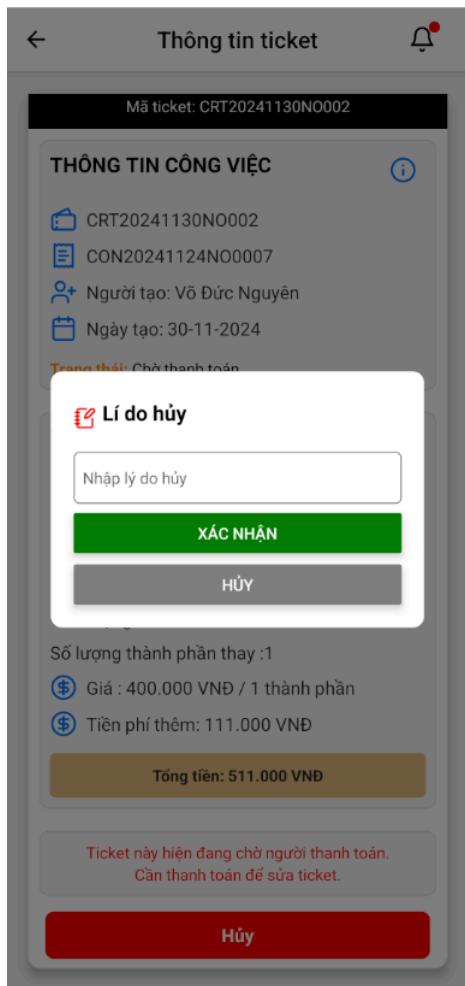


Figure 241. Cancel Ticket in Mobile screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system with technical staff in mobile.
    - Users have permissions to access the system in mobile.
    - User is on any ticket with the status “Chờ thanh toán”.
  - Post condition:
    - Success: Users can cancel tickets for machine tasks in the system.
    - Fail: When updating data with error will show an error toast.
  - Business rules: N/A.

### 3.3.3 Manage Notification

#### 3.3.3.1 View Notifications

- Function trigger: Technical Staff clicks on Bell icon on header in mobile.
- Function description:
  - Actors: Technical Staff.
  - Purpose: Users want to view their notifications in the system.
- Screen layout:



Figure 242. View Notification List in Mobile screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system with technical staff in mobile.
    - Users have permissions to access the system in mobile.
  - Post condition:
    - Success: User can view notifications that the user has received in the system.
    - Fail: When loading data with error will show an error toast.
  - Business rules: N/A.

### 3.3.3.2 View Notification Detail

- Function trigger: Technical Staff clicks on Bell icon on header in mobile.
- Function description:
  - Actors: Technical Staff.
  - Purpose: Users want to view notification details in the system.
- Screen layout:

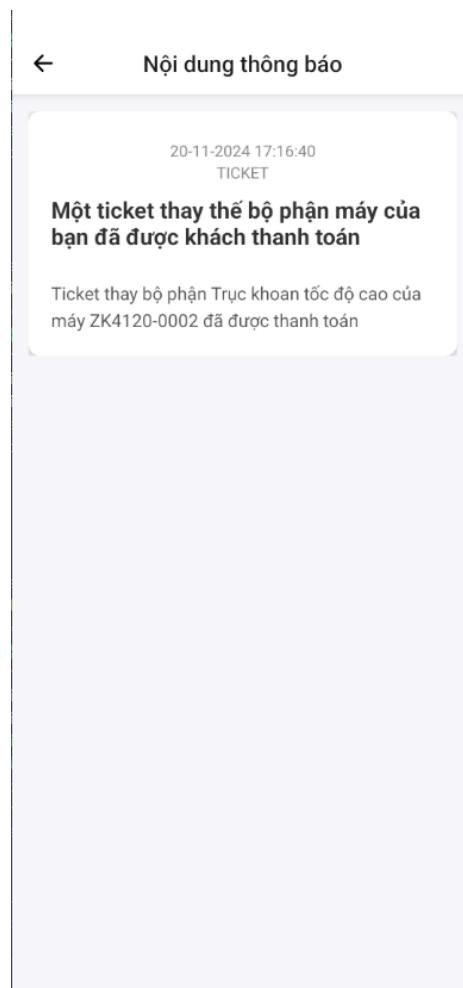


Figure 243. View Notification Detail in Mobile screen

- Function Detail:
  - Pre-condition:
    - User is successfully logs into the system with technical staff in mobile.
    - Users have permissions to access the system in mobile.
  - Post condition:
    - Success: User can view notification details that the user has received in the system.
    - Fail: When loading data with error will show an error toast.
  - Business rules: N/A.

## 4. Non-Functional Requirements

### 4.1 External Interfaces

#### 4.1.1 User Interfaces

- The language used in the application is Vietnamese.

#### 4.1.2. Communications Interfaces

- The system should use the HTTP method to transfer data.

### 4.2 Quality Attributes

#### 4.2.1 Usability

- The application should be friendly and easy for users to use.

- Users can use the application with less than a day's instruction.

#### 4.2.2 Reliability

- System failure is less than 5% and system availability is above 85%.

#### 4.2.3 Performance

- The system should respond to user requests such as load page, execute transactions, ... that do not exceed 10 per seconds.

#### 4.2.4 Security

- The system is divided into 4 roles of users: Administrator, Manager, Staff, Customer
- Each role can only access its own set of functions.
- All input data are validated before saving to the database.
- The system always checks authorization before executing a function.
- Passwords must never be stored in plaintext.

### 5. Requirement Appendix

#### 5.1 Business Rules

ID	Rule Definition
BR-01	Accounts in locked status will not be logged in.
BR-02	Accounts with technical staff positions will not be allowed to log in.
BR-03	All information must be required.
BR-04	An account must have an email to register into the system.
BR-05	When registering for an account, users need to enter the OTP code sent via registered email for authentication.
BR-06	When the user forgets the password, the user should fill in the email so the system will send the OTP code. After authentication, the user will be allowed to set a new password.
BR-07	Users should confirm the password to register or change or forget the password.
BR-08	Administrator accounts cannot view customer passwords.
BR-09	When changing any information, there should be a confirmation dialog to change.
BR-10	The system allows to create 3 employee positions: Manager, website staff, technical staff.
BR-11	When a user creates a new account, that account is a customer account.
BR-12	Manager, Technical and Website Staff accounts can only be created by the administrator and when creating a new account password will be sent by email that admin creates.
BR-13	The administrator can view the login log of all accounts in the system.
BR-14	Managers can manage membership rank in the system.
BR-15	Machines have a unique model name.
BR-16	Machines have a unique machine name.
BR-17	Machine serial numbers have a unique serial number.
BR-18	Components have a unique component name.

BR-19	Machine serial number can not be deleted if it is in the contract.
BR-20	Website staff can only delete the renting service if it is not in any renting request.
BR-21	Address is required when customers create new renting requests.
BR-22	The rent period duration must be at least 90 days (3 months).
BR-23	The rent period duration must be in 365 days (12 months).
BR-24	The rent start date must be within 30 days (1 month) of the current date.
BR-25	Customers can only cancel the renting request if they have not paid a deposit or rental invoice.
BR-26	The system will auto cancel the renting request if the customers do not pay a deposit or rental invoice.
BR-27	The contract can only change to signed status if customers pay deposit and rental invoice.
BR-28	Customers can only end a contract if the contract is in [Renting] status.
BR-29	Customers can only extend each contract one time.
BR-30	Customers can only extend a contract if the contract is in [Renting] status.
BR-31	The new end date of the extended contract must be at least 30 days after the base contract end date.
BR-32	Customers can only create a new machine check request if the previous one has completed.
BR-33	Customers can only create a new machine check request if the current contract is in renting status.
BR-34	Customers can not cancel the machine check request if the current one is in process.
BR-35	Each technical staff has a maximum of 3 tasks in one day.
BR-36	Manager can create a new task and assign it to specific staff.
BR-37	Customers can view the repair history related to each of their contracts.
BR-38	The content of the contract will be used according to the format.
BR-39	Only when the machine has any damage that needs to be replaced will we create a ticket to repair the machine.
BR-40	Creating machine repair jobs will include two types, one is machine repair work during the rental period and the end of the contract period.
BR-41	The employee's work should be handled with a maximum of 3 tasks per day including machine inspection and machine transportation.
BR-42	For machine inspection work at the end of the contract, the repair fee will be deducted directly from the deposit.
BR-43	Only for contracts awaiting deposit payment can the process of contract termination and deposit payment be carried out.
BR-44	The system allows the machine to be delivered according to the customer's request (For example, a request with many contracts will be delivered according to that request).
BR-45	When there is a problem with machine delivery when the customer is not present to receive the machine, the machine delivery job will be created on another day.

BR-46	Only delivery jobs in a canceled state can be assigned a new delivery job through the failed job's contents.
BR-47	When delivering the device, the technical staff will need to confirm the recipient and take photos of evidence. Photos can only be taken when the staff's location is near the customer's requested shipping address.
BR-48	When the technical staff begins to accept shipping, they will notify the customer that the order is starting to be shipped.
BR-49	If there is a problem during transportation, the technical staff must fill in the reason why the job was canceled and the system will notify the manager to re-assign the job.
BR-50	Tickets created during the rental process are used to repair the machine. Customers need to pay before the technician repairs the machine.
BR-51	Only when the tickets of the machine testing job are completed can the machine testing job be completed.
BR-52	A machine component will only be created once per machine job.
BR-53	The number of replacement components when damaged must not exceed the number of machine structures and the number of components in the system's inventory.
BR-54	Machine repair and delivery jobs must not fall on Saturdays and Sundays.
BR-55	When customers pay late, they will be fined 500,000 VND each. This amount and any unpaid fees will be deducted from the return deposit upon liquidation of the contract.
BR-56	Only contracts in completed status can view the liquidation report.
BR-57	Only contracts that are in the lease process or have been liquidated can view the contract's repair history, repair requests and invoices.
BR-58	After the manager refunds the contract deposit to the customer, the rental machine for that contract will be changed to [Maintained] status.
BR-59	The number of vehicles must not exceed the total number of contracts.
BR-60	Categories have a unique category name.
BR-61	When a user creates an account, the account will need to be approved by the manager to access the system.

Table 20 - Business rule

## 5.2 Common Requirements

CR-1: User Authentication: The system must provide a secure way for users to login and authenticate their identities.

CR-2: User Interface: Providing an intuitive and user-friendly interface that allows users to interact with the system.

CR-3: Data Security: Protecting sensitive data from unauthorized access, ensuring data privacy and compliance with relevant regulations.

CR-4: User Role and Permissions: Defining user roles and permissions for different levels of access and functionality.

### 5.3 Application Messages List

#	Message code	Message Type	Context	Content
1	MSG01	In line	There is not any search result	<i>Không có kết quả bạn tìm.</i>
2	MSG02	In red, under the text box	Input-required fields are empty	<i>The * field is required.</i>
3	MSG03	Toast message	Update component machine successfully	<i>Cập nhật thành phần thành công</i>
4	MSG04	Toast message	Updated machine specifications successfully	<i>Cập nhật thông số kỹ thuật thành công</i>
5	MSG05	Toast message	Create a new staff account successfully.	<i>Tạo tài khoản thành công</i>
6	MSG06	Toast message	Create a new staff account unsuccessfully.	<i>Cập nhật tài khoản thất bại</i>
7	MSG07	Toast message	Email existed	<i>Tài khoản với email này đã tồn tại.</i>
8	MSG08	Toast message	Username existed	<i>Tài khoản với tên người dùng này đã tồn tại.</i>
9	MSG09	Toast message	Wrong date format	<i>Format ngày không đúng, xin hãy dùng 'yyyy-MM-dd'.</i>
10	MSG10	Toast message	Check distance for evidence	<i>Bạn đang ở quá xa vị trí khách hàng không thể mở camera!</i>
11	MSG11	Toast message	Check receiver name	<i>Vui lòng nhập tên người nhận!</i>
12	MSG12	Toast message	Check evidence for complete delivery task	<i>Bạn cần chụp đủ bằng chứng để hoàn thành công việc!</i>
13	MSG13	Toast message	Receive delivery task successfully	<i>Nhận công việc thành công</i>
14	MSG14	Toast message	Update delivery task successfully	<i>Cập nhật công việc thành công</i>
15	MSG15	Toast message	Check quantity when create ticket	<i>Số lượng thay thế lớn hơn số lượng thành phần tạo máy</i>
16	MSG16	Toast message	Check quantity when create ticket	<i>Số lượng thay thế trong kho không đủ để sửa!</i>
17	MSG17	Toast message	Check quantity when create ticket	<i>Vui lòng nhập số lượng cần thay thế cho máy!</i>

18	MSG18	Toast message	Update Content successfully	Cập nhật nội dung thành công
19	MSG19	Toast message	Change status account successfully	Cập nhật trạng thái người dùng thành công
20	MSG20	Toast message	Change status content successfully	Cập nhật trạng thái nội dung thành công
21	MSG21	Toast message	Delete member ranking package successfully	Xóa gói thành viên thành công
22	MSG22	Toast message	Content Not Found	Nội dung không tồn tại
23	MSG23	Toast message	Category Not Found	Loại máy không tồn tại
24	MSG24	Toast message	Category Exists Error	Loại máy với tên này đã tồn tại.
25	MSG25	Toast message	Invalid Role Value	Giá trị vai trò không hợp lệ
26	MSG26	Toast message	Account Not Found	Tài khoản không tồn tại.
27	MSG27	Toast message	Email Already Exists	Tài khoản với email này đã tồn tại.
28	MSG28	Toast message	Username Already Exists	Tài khoản với tên người dùng này đã tồn tại.
29	MSG29	Toast message	Account Deleted	Tài khoản đã bị xóa
30	MSG30	Toast message	Wrong Password	Sai mật khẩu
31	MSG31	Toast message	Account Inactive	Tài khoản chưa kích hoạt
32	MSG32	Toast message	Account Locked	Tài khoản đã bị khóa
33	MSG33	Toast message	Account Chosen Locked	Tài khoản bạn chọn đã bị khóa
34	MSG34	Toast message	Wrong Otp	Mã OTP không hợp lệ
35	MSG35	Toast message	Account Not Valid To Update	Tài khoản không thể cập nhật do thông tin không hợp lệ
36	MSG36	Toast message	Account Role Is Not Suitable To Assign For This Task	Tài khoản nhân viên mà bạn chọn không thể thực hiện chức năng này
37	MSG37	Toast message	Membership Ranks Empty	Danh sách hạng thành viên trống.

38	MSG38	Toast message	Membership Rank Not Found	<i>Hạng thành viên không tồn tại.</i>
39	MSG39	Toast message	No Membership Rank	<i>Khách hàng hiện không có hạng thành viên.</i>
40	MSG40	Toast message	Machine Not Found	<i>Không tìm thấy sản phẩm</i>
41	MSG41	Toast message	Machine Name Duplicated	<i>Tên sản phẩm bị trùng</i>
42	MSG42	Toast message	Machine Model Duplicated	<i>Mã model sản phẩm bị trùng</i>
43	MSG43	Toast message	Component Id List Not Correct	<i>Danh sách bộ phận máy không đúng</i>
44	MSG44	Toast message	Status Not Available	<i>Trạng thái này không tồn tại</i>
45	MSG45	Toast message	Machine Has Serial Number Cannot Deleted	<i>Sản phẩm này đã có danh sách các mã serial, vì vậy không thể xóa</i>
46	MSG46	Toast message	Machine Has Serial Number Cannot Update Component List	<i>Sản phẩm này đã có danh sách các mã serial, vì vậy không thể cập nhật danh sách các bộ phận máy</i>
47	MSG47	Toast message	Machine State Not Suitable For Modify Status	<i>Trạng thái máy hiện giờ không cho phép khóa/mở khóa</i>
48	MSG48	Toast message	Component Name Duplicated	<i>Tên bộ phận máy bị trùng</i>
49	MSG49	Toast message	Component Not Existed	<i>Bộ phận máy không tồn tại</i>
50	MSG50	Toast message	Component Has Been Used Cannot Update Name	<i>Bộ phận máy đã được sử dụng, không thể đổi tên</i>
51	MSG51	Toast message	Component Status Cannot Set	<i>Tình trạng bộ phận máy này không thể được cài đặt</i>
52	MSG52	Toast message	Component Has Been Used Cannot Delete	<i>Bộ phận máy đã được sử dụng, không thể xóa</i>
53	MSG53	Toast message	Machine Serial Number Duplicated	<i>Mã máy bị trùng</i>
53	MSG54	Toast message	Machine Have No Component And Is Force Set To False	<i>Máy này chưa có bộ phận, bạn có chắc là muốn thêm mã máy này</i>
55	MSG55	Toast message	Machine Serial Number Not Found	<i>Mã máy không tồn tại</i>
56	MSG56	Toast message	Machine Serial Number Has Contract	<i>Mã máy đã có trong hợp đồng, không thể xóa</i>

57	MSG57	Toast message	Status Cannot Set	Tình trạng mã máy này không thể được cài đặt
58	MSG58	Toast message	Machine State Not Suitable For Modify Status	Trạng thái máy hiện giờ không cho phép khóa/mở khóa
59	MSG59	Toast message	Component Id Not Found	Mã bộ phận máy serial này không tìm thấy
60	MSG60	Toast message	Component Is Not Broken To Create Ticket	Bộ phận máy này chưa hư hỏng để tạo ticket
61	MSG61	Toast message	You Cannot Update Status Of Component While Renting	Bạn không thể cập nhật trạng thái của bộ phận máy khi máy đang thuê
62	MSG62	Toast message	Invalid Quantity	Số lượng bộ phận bạn nhập vào không phù hợp với máy này
63	MSG63	Toast message	Machine Not Suitable For Available Status	Trạng thái máy hiện tại không thể chuyển sang sẵn sàng
64	MSG64	Toast message	Machine Not Suitable For Maintained Status	Trạng thái máy hiện tại không thể chuyển sang đang bảo trì
65	MSG65	Toast message	Machine Component Still Broken	Thành phần máy hiện tại vẫn còn hư hỏng, chưa thể chuyển trạng thái máy qua sẵn sàng
66	MSG66	Toast message	Machine Serial Number Not Mapping Correct	Bộ phận máy serial này không thuộc về máy này
67	MSG67	Toast message	Contract Not Found	Hợp đồng không tồn tại.
68	MSG68	Toast message	Contract Out Of Range	Hợp đồng này chưa bắt đầu hoặc là đã kết thúc
69	MSG69	Toast message	Contract Is Not Ready For Request	Hợp đồng này chưa thể tạo yêu cầu liên quan
70	MSG70	Toast message	Contract Not Valid To Delivery	Hợp đồng không thể giao do chưa ký hoặc đã giao thành công, mã hợp đồng:
71	MSG71	Toast message	Contract Not Valid To Delivery Old Contract Delivery Still Active	Hợp đồng không thể giao do vẫn còn lịch cũ chưa hoàn thành/ đã thành công, mã hợp đồng:
72	MSG72	Toast message	Contract Not Valid To End	Hợp đồng không thể kết thúc do không hợp lệ
73	MSG73	Toast message	Contract Not Valid To Create Refund Invoice	Hợp đồng không hợp lệ để tạo hóa đơn hoàn trả.

74	MSG74	Toast message	Extension Period Not Valid	Thời gian gia hạn phải tối thiểu 30 ngày tính từ ngày kết thúc của hợp đồng hiện tại.
75	MSG75	Toast message	Contract Not Valid To Extend	Hợp đồng không thể gia hạn do không hợp lệ
76	MSG76	Toast message	Contract Delivery Not Found	Mã số đơn giao hợp đồng không tìm thấy
77	MSG77	Toast message	Contract Already Extended	Hợp đồng này đã được gia hạn, không thể gia hạn được nữa
78	MSG78	Toast message	Request Machines Invalid	Danh sách máy yêu cầu thuê không hợp lệ
79	MSG79	Toast message	Request Address Invalid	Địa chỉ yêu cầu thuê không hợp lệ.
80	MSG80	Toast message	Rent Period InValid	Thời gian yêu cầu thuê không hợp lệ
81	MSG81	Toast message	Renting Request Not Found	Yêu cầu thuê không tồn tại
82	MSG82	Toast message	Renting Request Can Not Cancel	Yêu cầu thuê không tồn tại hoặc không thể hủy
83	MSG83	Toast message	Renting Request Cancel Successfully	Hủy yêu cầu thuê thành công
84	MSG84	Toast message	Renting Request Cancel Fail	Hủy yêu cầu thuê thất bại
85	MSG85	Toast message	Create Renting Request Fail	Tạo yêu cầu thuê thất bại
86	MSG86	Toast message	Renting Service List Empty	Danh sách dịch vụ thuê trống
87	MSG87	Toast message	Renting Service Not Found	Dịch vụ thuê không tồn tại
88	MSG88	Toast message	Renting Service Can Not Delete	Dịch vụ thuê này đã được sử dụng và không thể xóa.
89	MSG89	Toast message	Address List Empty	Danh sách địa chỉ của bạn trống
90	MSG90	Toast message	Address Not Valid	Địa chỉ không tồn tại hoặc không hợp lệ
91	MSG91	Toast message	Delivery Task Not Found	Mã giao hàng này không tồn tại
92	MSG92	Toast message	Status Cannot Set	Tình trạng giao hàng này không thể được cài đặt

93	MSG93	Toast message	Status Not Available	Trạng thái này không tồn tại
94	MSG94	Toast message	Contract Are Not In The Same Request	Những hợp đồng này không cùng một đơn yêu cầu
95	MSG95	Toast message	You Cannot Change This Delivery	Bạn không có quyền thay đổi trạng thái của yêu cầu giao nhận này
96	MSG96	Toast message	Invalid Contract Delivery List	Danh sách các hợp đồng của lần giao hàng này không hợp lệ
97	MSG97	Toast message	All Contract Delivery Fail Please Call All Fail API	Tất cả các hợp đồng giao đều thất bại, xin hãy gọi API khác
98	MSG98	Toast message	Contract Delivery Not Found	Mã yêu cầu này không tồn tại
99	MSG99	Toast message	Status Cannot Set	Tình trạng yêu cầu này không thể được cài đặt
100	MSG100	Toast message	Status Not Available	Trạng thái này không tồn tại
101	MSG101	Toast message	Pending Request Still Exist	Bạn vẫn còn một yêu cầu chưa được xử lý, không thể tạo yêu cầu mới
102	MSG102	Toast message	Not Correct Customer	Bạn không thể thực hiện hành động này do đây không phải là yêu cầu của bạn
103	MSG103	Toast message	Request Cannot Cancel	Yêu cầu này không thể hủy do quá trình sửa máy đã bắt đầu
104	MSG104	Toast message	Cancel Request Fail	Quá trình hủy yêu cầu này đã xảy ra lỗi
105	MSG105	Toast message	Task Not Found	Mã công việc này không tồn tại
106	MSG106	Toast message	Status Cannot Set	Tình trạng công việc này không thể được cài đặt
107	MSG107	Toast message	Status Not Available	Trạng thái này không tồn tại
108	MSG108	Toast message	Cannot Deleted	Công việc này không thể xóa
109	MSG109	Toast message	Reach Max Task Limit	Nhân viên này đã đạt đến số công việc tối đa trong ngày
110	MSG110	Toast message	Task Not Possible Request Status	Yêu cầu này đã được xử lý, không thể tạo nhiệm vụ mới

111	MSG111	Toast message	Task Termination Not Possible Contract Status	Hợp đồng này chưa thể tạo yêu cầu check máy đáo hạn hợp đồng
112	MSG112	Toast message	Task Check Delivery Fail Not Possible Contract Status	Hợp đồng này chưa thể tạo yêu cầu check máy sau khi giao thất bại
113	MSG113	Toast message	Task Not Possible Component Replacement Ticket Status	Chưa thể tạo nhiệm vụ mới với ticket này
114	MSG114	Toast message	Not Correct Task Type	Loại công việc này không đúng để thực hiện chức năng này
115	MSG115	Toast message	Incorrect Staff Id To Update	Bạn không thể thực hiện hành động này
116	MSG116	Toast message	Cannot Create Ticket With This Task	Trạng thái nhiệm vụ này không thể tạo ticket thay thế bộ phận máy
117	MSG117	Toast message	Create Fail	Có lỗi xảy ra trong quá trình tạo nhiệm vụ
118	MSG118	Toast message	Task Cannot Complete Due To Ticket List Unfulfill	Có lỗi xảy ra trong quá trình tạo nhiệm vụ
119	MSG119	Toast message	Task Ship Fail Cannot Complete Due To Machine Still Have Broken Component	Nhiệm vụ kiểm tra máy này chưa thể hoàn thành để đem máy đi giao được do có bộ phận bị hư hỏng
120	MSG120	Toast message	Ticket Not Found	Mã yêu cầu thay thế này không tồn tại
121	MSG121	Toast message	Status Cannot Set	Tình trạng yêu cầu thay thế này không thể được cài đặt
122	MSG122	Toast message	Status Not Available	Trạng thái này không tồn tại
123	MSG123	Toast message	Bigger Quantity Than Machine	Số lượng nhập vào lớn hơn số lượng bộ phận của máy
124	MSG124	Toast message	Not Enough Quantity	Bộ phận này hiện nay không có trong kho
125	MSG125	Toast message	Create Fail	Tạo ticket thay thế bộ phận máy thất bại
126	MSG126	Toast message	Not Ready To Be Completed When Not Paid	Ticket này chưa thể hoàn thành do chưa thanh toán
127	MSG127	Toast message	Not Correct Staff Id	Tài khoản này không phải là người tạo ticket, do đó không thể hoàn thành nó
128	MSG128	Toast message	Complete Fail	Cập nhật trạng thái hoàn thành của ticket thất bại

129	MSG129	Toast message	Cannot Cancel Already Paid	<i>Không thể hủy ticket này do đã thanh toán</i>
130	MSG130	Toast message	Not Correct Customer Id	<i>Bạn không thể hủy ticket này do đây không phải là ticket của bạn</i>
131	MSG131	Toast message	Error When Cancel	<i>Có lỗi xảy ra khi hủy ticket</i>
132	MSG132	Toast message	Duplicate Component Ticket For This Task	<i>Công việc này đã có một ticket thay thế bộ phận này, vì thế không thể tạo thêm"</i>
133	MSG133	Toast message	Duplicate Component Ticket For This Contract When Terminate	<i>Hợp đồng này đã có một ticket thay thế bộ phận này khi đáo hạn, vì thế không thể tạo thêm</i>
134	MSG134	Toast message	Term Not Found	<i>Điều khoản này không tìm thấy</i>
135	MSG135	Toast message	Term Type Not Correct	<i>Loại điều khoản này không tồn tại</i>
136	MSG136	Toast message	Invoice Not Found	<i>Hóa đơn này không tồn tại</i>
137	MSG137	Toast message	Incorrect Account Id For Invoice	<i>Hóa đơn này không thể được trả bởi bạn</i>
138	MSG138	Toast message	Invoice Have Been Paid	<i>Hóa đơn này đã được thanh toán</i>
139	MSG139	Toast message	Invoice Have Been Canceled	<i>Hóa đơn này đã bị hủy</i>
140	MSG140	Toast message	Create Invoice Fail	<i>Tạo hóa đơn thất bại</i>
141	MSG141	Toast message	Payment Reference Error	<i>Đã có lỗi xảy ra trong quá trình thực hiện thanh toán. Hiện tại trạng thái của mã này đang là:</i>
142	MSG142	Toast message	Filter Param Not Valid	<i>Tham số lọc không hợp lệ</i>
143	MSG143	Toast message	Contract Not Belong To This Account	<i>Hợp đồng này không thuộc tài khoản đăng nhập hiện tại</i>

Table 21 - Application Message

## IV. Software Design Description

### 1. System Design

#### 1.1 System Architecture

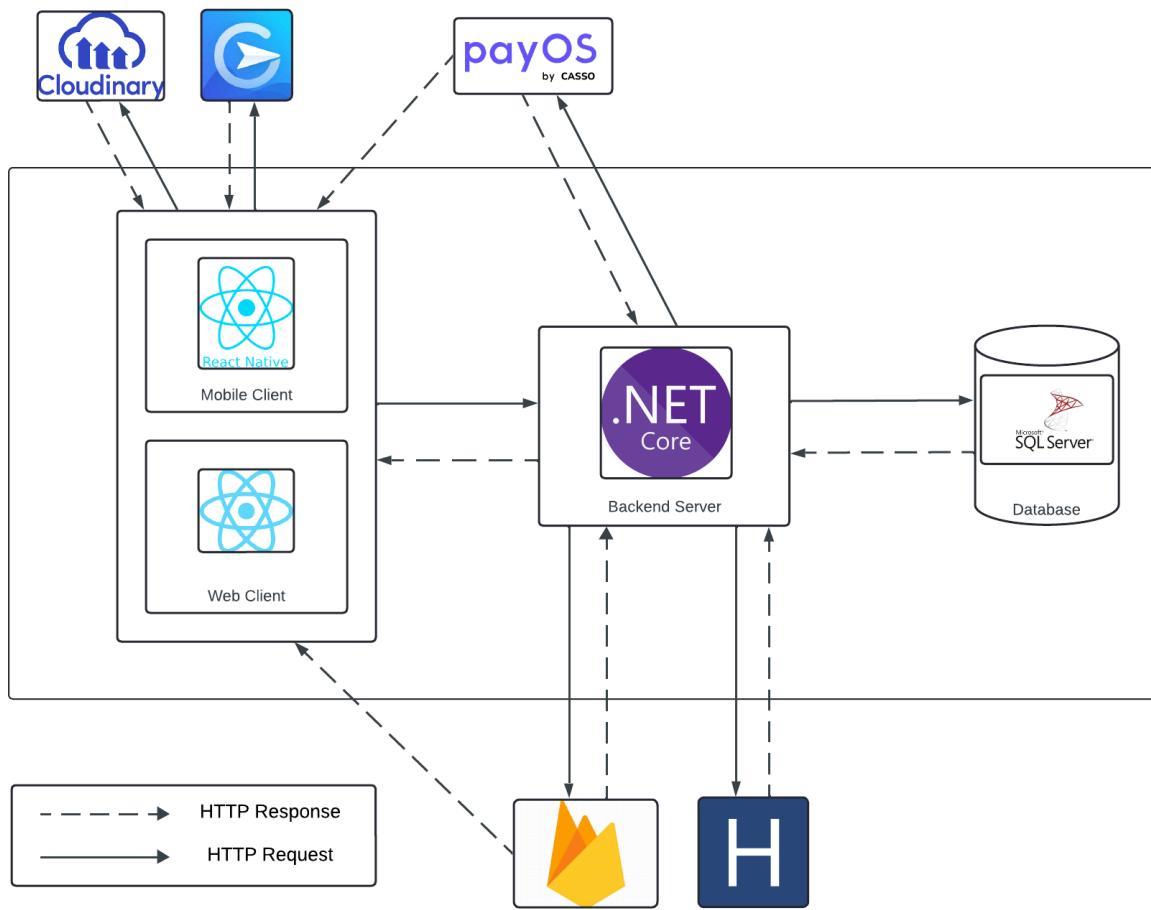


Figure 244: System Architecture

## 1.2 Package Diagram

### 1.2.1 Backend Package Diagram

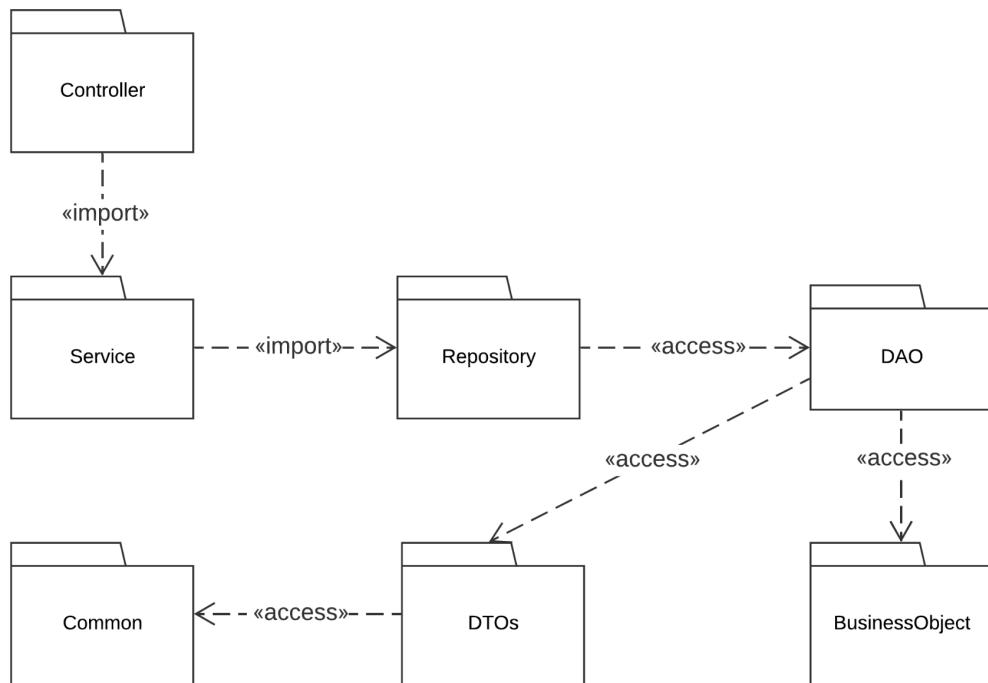


Figure 245: Back-end Package Diagram

#### Package Descriptions

No	Package	Description
1	Controller	This package handles requests from clients and navigates them to the appropriate service methods.
2	Service	This package manages the flow of data between controller and repository layer, containing the business logic of the application.
3	Repository	This package is responsible for object mapping, between DTO and Business Object.
4	DAO(Data Access Object)	This package provides the interaction with the database. It contains methods for performing CRUD operations on the entities.
5	DTOs(Data Transfer Object)	This package contains objects that represent the data structure used to transfer information between layers.
6	Common	This package contains shared resources such as constants, enumeration, message.

7	BusinessObject	This package contains the core entities of the application, which map directly to the database schema.
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Table 22 - Back-end Package Descriptions

### 1.2.2 Frontend Package Diagram

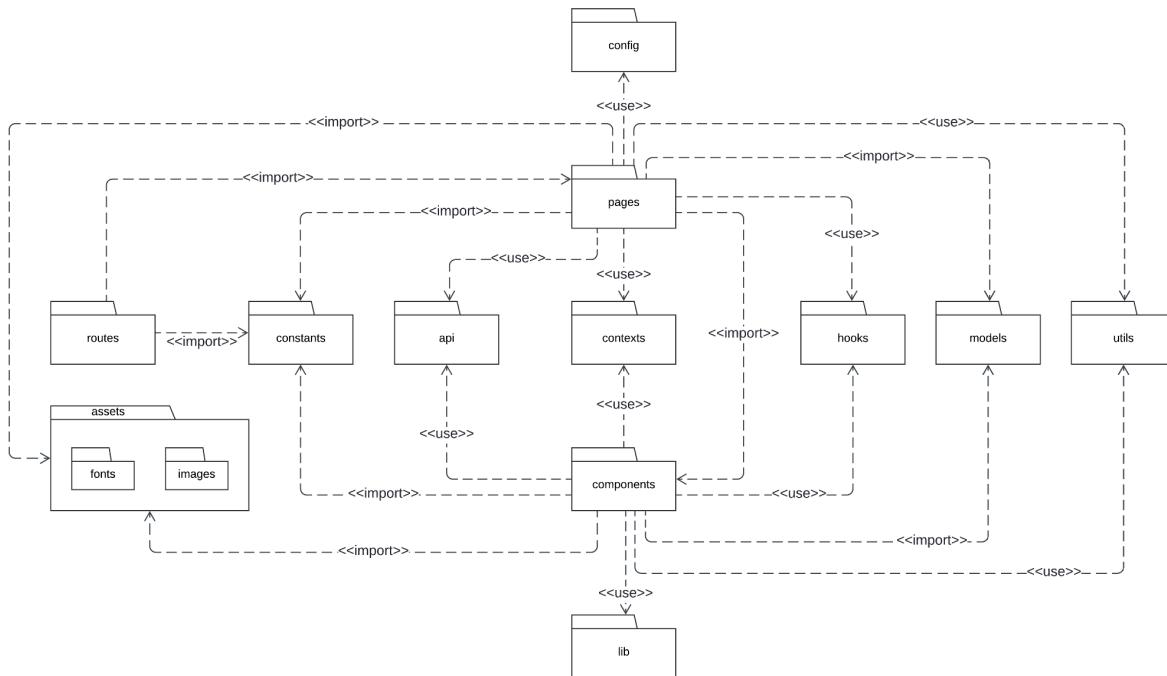


Figure 246: Front-end Package Diagram

### Package Descriptions

No	Package	Description
1	pages	This package contains all pages of the application
2	routes	This package contains all routes between the pages in the application
3	api	This package contains all the HTTP requests send from APIs
4	config	This package contains configs for firebase
5	components	This package contains all the reusable components
6	constants	This package contains all the constants used in the application
7	contexts	This package contains the core entities of the application, which map directly to the database schema.
8	hooks	This package contains all the hooks used in the application

9	models	This package contains types and interfaces for data in the application
10	utils	This package contains all the utilities functions in the application
11	fonts	This package contains fonts used in the application
12	images	This package contains images used in the application
13	lib	This package contains config for Shadcn

Table 23 - Front-end Package Descriptions

### 1.2.3 Mobile Package Diagram

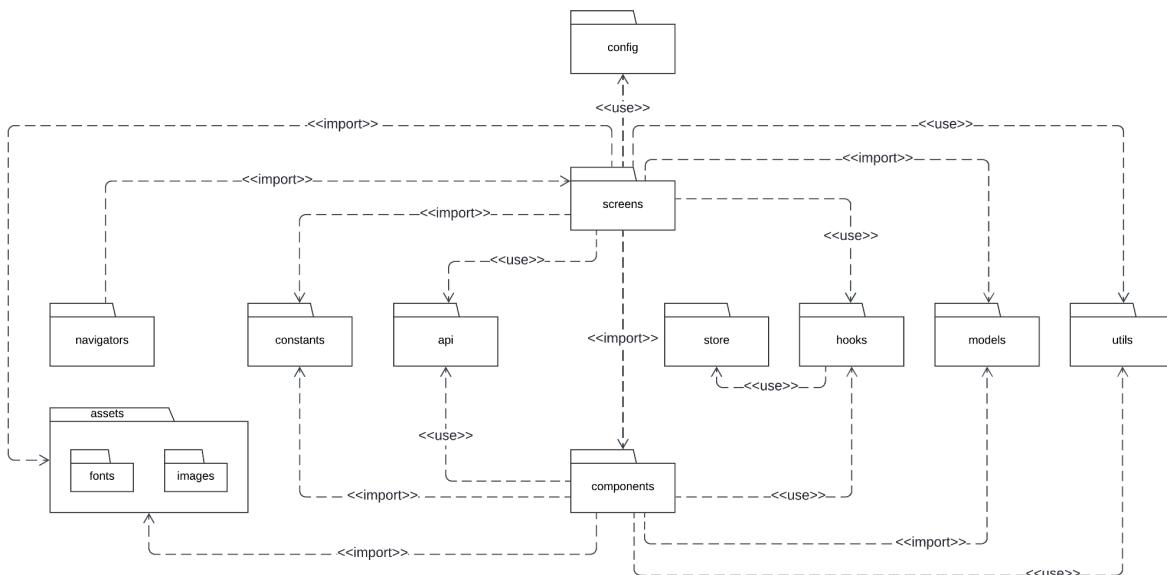


Figure 247: Mobile Package Diagram

### Package Descriptions

No	Package	Description
1	screens	This package contains all screens of the application
2	routes	This package contains all routes between the pages in the application
3	api	This package contains all the HTTP requests send from APIs
4	store	This package contains the store for Zustand
5	components	This package contains all the reusable components
6	constants	This package contains all the constants used in the application

7	hooks	This package contains all the hooks used in the application
8	models	This package contains types and interfaces for data in the application
9	utils	This package contains all the utilities functions in the application
10	fonts	This package contains fonts used in the application
11	images	This package contains images used in the application
12	config	This package contains config for firebase and signalR in the application

Table 24 - Mobile Package Descriptions

## 2. Database Design

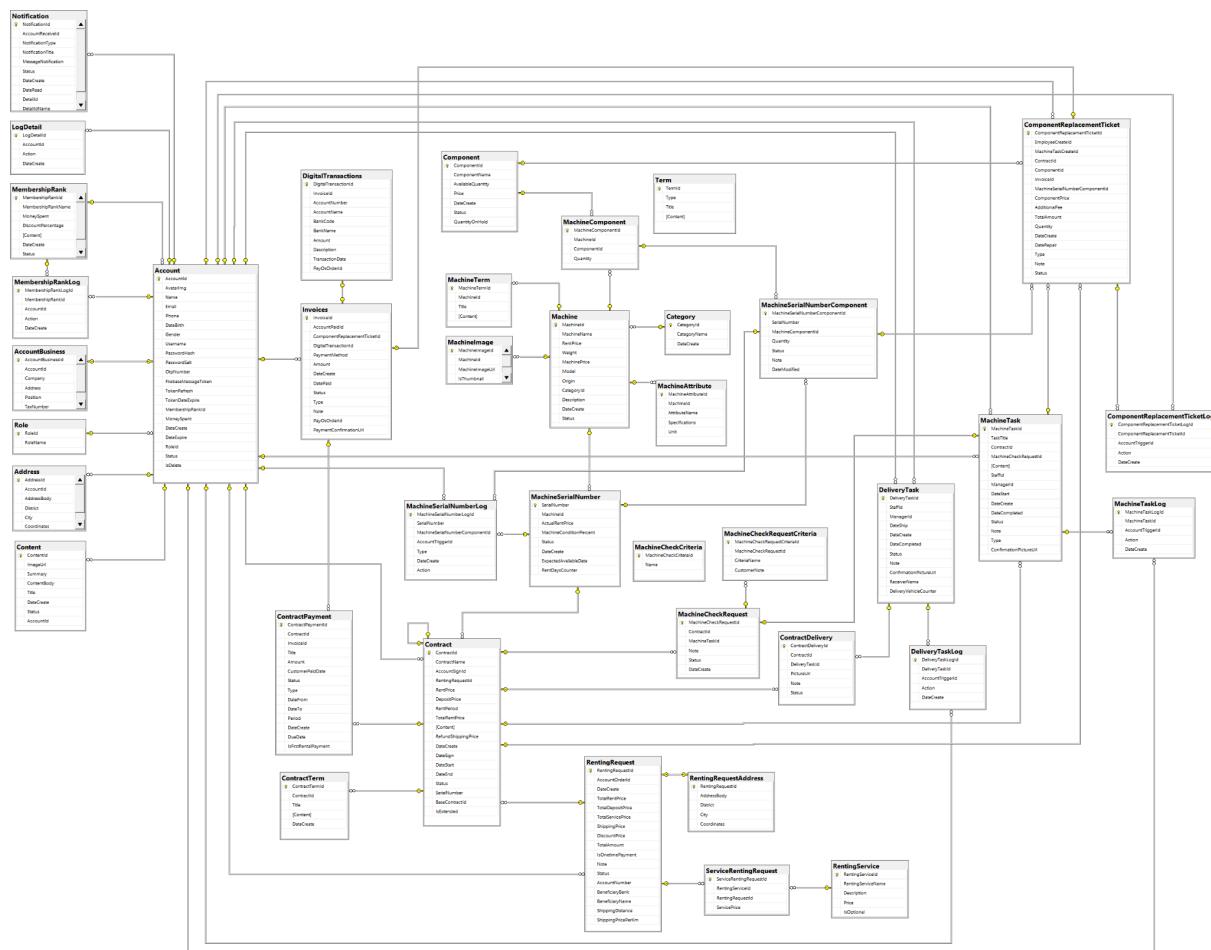


Figure 248: Database Design -Database

### Table Descriptions

#### 2.1 Table Account

Field Name	Type	Allow Nulls	Unique	PK/FK
AccountId	int	No	Yes	PK
AvatarImg	nvarchar(255)	No	No	
Name	nvarchar(100)	Yes	No	
Email	nvarchar(100)	Yes	No	
Phone	nvarchar(100)	Yes	No	
DateBirth	datetime	Yes	No	
Gender	int	Yes	No	
Username	nvarchar(100)	Yes	No	
PasswordHash	varbinary(max)	Yes	No	
PasswordSalt	varbinary(max)	Yes	No	
OTPNumber	nvarchar(10)	Yes	No	
TokenRefresh	nvarchar(max)	Yes	No	
TokenDateExpire	datetime	Yes	No	
MoneySpent	float	Yes	No	
MembershipRankID	int	Yes	No	FK
FirebaseMessageToken	nvarchar(max)	Yes	No	
DateCreate	datetime	Yes	No	
DateExpire	datetime	Yes	No	
RoleId	int	No	No	FK
Status	nvarchar(50)	Yes	No	
IsDelete	bit	No	No	

*Table 25 - Database Description - Table Account***2.2 Table Role**

Field Name	Type	Allow Nulls	Unique	PK/FK
RoleId	int	No	Yes	PK
RoleName	nvarchar(100)	Yes	No	

*Table 26 - Database Description - Table Role***2.3 Table Notification**

Field Name	Type	Allow Nulls	Unique	PK/FK
NotificationId	int	No	Yes	PK
AccountReceiveId	int	No	No	FK
NotificationType	nvarchar(100)	Yes	No	
NotificationTitle	nvarchar(100)	Yes	No	
MessageNotification	nvarchar(max)	Yes	No	
DateCreate	datetime	Yes	No	
DateRead	datetime	Yes	No	
Status	nvarchar(50)	Yes	No	
DetailId	nvarchar(100)	Yes	No	
DetailIdName	nvarchar(100)	Yes	No	

*Table 27 - Database Description - Table Notification***2.4 Table LogDetail**

Field Name	Type	Allow Nulls	Unique	PK/FK
LogDetailId	int	No	Yes	PK
AccountId	int	No	No	FK
Action	nvarchar(255)	Yes	No	
DateCreate	datetime	Yes	No	

*Table 28 - Database Description - Table LogDetail***2.5 Table MembershipRank**

Field Name	Type	Allow Nulls	Unique	PK/FK
MembershipRankId	int	No	Yes	PK
MembershipRankName	nvarchar(100)	Yes	No	
MoneySpent	float	Yes	No	
DiscountPercentage	float	Yes	No	
Content	nvarchar(max)	Yes	No	
DateCreate	datetime	Yes	No	
Status	nvarchar(50)	Yes	No	

*Table 29 - Database Description - Table MembershipRank***2.6 Table MembershipRankLog**

Field Name	Type	Allow Nulls	Unique	PK/FK
MembershipRankLogId	int	No	Yes	PK
MembershipRankId	int	No	No	FK
AccountId	int	No	No	FK
Action	nvarchar(255)	Yes	No	
DateCreate	datetime	Yes	No	

*Table 30 - Database Description - Table MembershipRankLog***2.7 Table AccountBusiness**

Field Name	Type	Allow Nulls	Unique	PK/FK
AccountBusinessId	int	No	Yes	PK
AccountId	int	No	No	FK
Company	nvarchar(100)	Yes	No	
TaxNumber	nvarchar(100)	Yes	No	
Address	nvarchar(255)	Yes	No	
Position	nvarchar(100)	Yes	No	

*Table 31 - Database Description - Table AccountBusiness***2.8 Table Address**

Field Name	Type	Allow Nulls	Unique	PK/FK
AddressId	int	No	Yes	PK
AccountId	int	No	No	FK
AddressBody	nvarchar(255)	Yes	No	
District	nvarchar(100)	Yes	No	
City	nvarchar(100)	Yes	No	
Coordinates	nvarchar(100)	Yes	No	

*Table 32 - Database Description - Table Address***2.9 Table Content**

Field Name	Type	Allow Nulls	Unique	PK/FK
ContentId	int	No	Yes	PK
AccountId	int	No	No	FK
Title	nvarchar(255)	Yes	No	
ImageUrl	nvarchar(255)	Yes	No	
Summary	nvarchar(max)	Yes	No	
ContentBody	nvarchar(max)	Yes	No	
DateCreate	datetime	Yes	No	
Status	nvarchar(50)	Yes	No	

*Table 33 - Database Description - Table Content***2.10 Table Term**

Field Name	Type	Allow Nulls	Unique	PK/FK
TermId	int	No	Yes	PK
Type	nvarchar(100)	Yes	No	
Title	nvarchar(max)	Yes	No	
Content	nvarchar(max)	Yes	No	

*Table 34 - Database Description - Table Term***2.11 Table Machine**

Field Name	Type	Allow Nulls	Unique	PK/FK
MachineId	int	No	Yes	PK
MachineName	nvarchar(255)	Yes	No	
MachinePrice	float	Yes	No	
RentPrice	float	Yes	No	
Weight	float	Yes	No	
Description	nvarchar(max)	Yes	No	
Model	nvarchar(100)	Yes	No	
Origin	nvarchar(100)	Yes	No	
CategoryId	int	No	No	FK
DateCreate	datetime	Yes	No	
Status	nvarchar(50)	Yes	No	

*Table 35 - Database Description - Table Machine***2.12 Table Category**

Field Name	Type	Allow Nulls	Unique	PK/FK
CategoryId	int	No	Yes	PK
CategoryName	nvarchar(100)	Yes	No	
DateCreate	datetime	Yes	No	

*Table 36 - Database Description - Table Category***2.13 Table MachineTerm**

Field Name	Type	Allow Nulls	Unique	PK/FK
MachineTermId	int	No	Yes	PK
MachineId	int	No	No	FK
Title	nvarchar(100)	Yes	No	
Content	nvarchar(max)	Yes	No	

*Table 37 - Database Description - Table MachineTerm***2.14 Table MachineAttribute**

Field Name	Type	Allow Nulls	Unique	PK/FK
MachineAttributId	int	No	Yes	PK
Machineld	int	No	No	FK
AttributeName	nvarchar(100)	Yes	No	
Specifications	nvarchar(255)	Yes	No	
Unit	nvarchar(100)	Yes	No	

*Table 38 - Database Description - Table MachineAttribute***2.15 Table MachinelImage**

Field Name	Type	Allow Nulls	Unique	PK/FK
MachinelmagId	int	No	Yes	PK
Machineld	int	No	No	FK
MachinelImageUrl	nvarchar(255)	Yes	No	
IsThumbnail	bit	Yes	No	

*Table 39 - Database Description - Table MachinelImage***2.16 Table Component**

Field Name	Type	Allow Nulls	Unique	PK/FK
ComponentId	int	No	Yes	PK
ComponentName	nvarchar(100)	Yes	No	
QuantityOnHold	int	Yes	No	
Price	float	Yes	No	
DateCreate	datetime	Yes	No	
Status	nvarchar(50)	Yes	No	
AvailableQuantity	int	Yes	No	

*Table 40 - Database Description - Table Component***2.17 Table MachineComponent**

Field Name	Type	Allow Nulls	Unique	PK/FK

MachineComponentId	int	No	Yes	PK
ComponentId	int	No	No	FK
Machineld	int	No	No	FK
Quantity	int	Yes	No	

*Table 41 - Database Description - Table MachineComponent***2.18 Table MachineSerialNumber**

Field Name	Type	Allow Nulls	Unique	PK/FK
SerialNumber	nvarchar(100)	No	Yes	PK
Machineld	int	No	No	FK
ActualRentPrice	float	Yes	No	
DateCreate	datetime	Yes	No	
Status	nvarchar(50)	Yes	No	
RentDaysCounter	int	Yes	No	
MachineConditionPercent	int	Yes	No	
ExpectedAvailableDate	datetime	Yes	No	

*Table 42 - Database Description - Table MachineSerialNumber***2.19 Table MachineSerialNumberLog**

Field Name	Type	Allow Nulls	Unique	PK/FK
MachineSerialNumberLogId	int	No	Yes	PK
SerialNumber	nvarchar(100)	No	No	FK
AccountTriggerId	int	No	No	FK
MachineSerialNumberComponentId	int	No	No	FK
Type	nvarchar(100)	Yes	No	
DateCreate	datetime	Yes	No	
Action	nvarchar(255)	Yes	No	

*Table 43 - Database Description - Table MachineSerialNumberLog***2.20 Table MachineSerialNumberComponent**

Field Name	Type	Allow Nulls	Unique	PK/FK
MachineSerialNumberComponentId	int	No	Yes	PK
SerialNumber	nvarchar(100)	No	No	FK
MachineComponentId	int	No	No	FK
Quantity	int	Yes	No	
DateModified	datetime	Yes	No	
Status	nvarchar(50)	Yes	No	
Note	nvarchar(max)	Yes	No	

*Table 44 - Database Description - Table MachineSerialNumberComponent***2.21 Table RentingRequest**

Field Name	Type	Allow Nulls	Unique	PK/FK
RentingRequestId	nvarchar(100)	No	Yes	PK
AccountOrderId	int	No	No	FK
TotalRentPrice	float	Yes	No	
TotalDepositPrice	float	Yes	No	
TotalServicePrice	float	Yes	No	
DiscountPrice	float	Yes	No	
ShippingPrice	float	Yes	No	
TotalAmount	float	Yes	No	
IsOnetimePayment	bit	Yes	No	
Note	nvarchar(max)	Yes	No	
DateCreate	datetime	Yes	No	
Status	nvarchar(50)	Yes	No	
AccountNumber	nvarchar(100)	Yes	No	

BeneficiaryBank	nvarchar(100)	Yes	No	
BeneficiaryName	nvarchar(100)	Yes	No	
ShippingDistance	float	Yes	No	
ShippingPricePerKm	float	Yes	No	

*Table 45 - Database Description - Table RentingRequest***2.22 Table RentingRequestAddress**

Field Name	Type	Allow Nulls	Unique	PK/FK
RentingRequestId	nvarchar(100)	No	Yes	PK, FK
AddressBody	nvarchar(255)	Yes	No	
District	nvarchar(100)	Yes	No	
City	nvarchar(100)	Yes	No	
Coordinates	nvarchar(100)	Yes	No	

*Table 46 - Database Description - Table RentingRequestAddress***2.23 Table RentingService**

Field Name	Type	Allow Nulls	Unique	PK/FK
RentingServiceId	int	No	Yes	PK
RentingServiceName	nvarchar(100)	Yes	No	
Description	nvarchar(max)	Yes	No	
Price	float	Yes	No	
IsOptional	bit	Yes	No	

*Table 47 - Database Description - Table RentingService***2.24 Table ServiceRentingRequest**

Field Name	Type	Allow Nulls	Unique	PK/FK
ServiceHiringRequestId	int	No	Yes	PK
RentingServiceId	int	No	No	FK
RentingRequestId	nvarchar(100)	No	No	FK

ServicePrice	float	Yes	No	
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Table 48 - Database Description - Table ServiceRentingRequest

**2.25 Table Contract**

Field Name	Type	Allow Nulls	Unique	PK/FK
ContractId	nvarchar(100)	No	Yes	PK
ContractName	nvarchar(100)	Yes	No	
AccountSignId	int	No	No	FK
RentingRequestId	nvarchar(100)	No	No	FK
SerialNumber	nvarchar(100)	No	No	FK
RentPrice	float	Yes	No	
DepositPrice	float	Yes	No	
RentPeriod	int	Yes	No	
TotalRentPrice	float	Yes	No	
Content	nvarchar(max)	Yes	No	
DateCreate	datetime	Yes	No	
DateSign	datetime	Yes	No	
DateStart	datetime	Yes	No	
DateEnd	datetime	Yes	No	
Status	nvarchar(50)	Yes	No	
BaseContractId	nvarchar(100)	Yes	No	PK
IsExtended	bit	Yes	No	
RefundShippingPrice	float	Yes	No	

Table 49 - Database Description - Table Contract

**2.26 Table ContractTerm**

Field Name	Type	Allow Nulls	Unique	PK/FK
ContractTermId	int	No	Yes	PK

ContractId	nvarchar(100)	No	No	FK
Title	nvarchar(100)	Yes	No	
Content	nvarchar(max)	Yes	No	
DateCreate	datetime	Yes	No	

*Table 50 - Database Description - Table ContractTerm***2.27 Table ContractPayment**

Field Name	Type	Allow Nulls	Unique	PK/FK
ContractPaymentId	int	No	Yes	PK
Invoiceld	nvarchar(100)	No	No	FK
ContractId	nvarchar(100)	No	No	FK
Title	nvarchar(100)	Yes	No	
Amount	float	Yes	No	
CustomerPaidDate	datetime	Yes	No	
Status	nvarchar(50)	Yes	No	
Type	nvarchar(100)	Yes	No	
Period	int	Yes	No	
DateFrom	datetime	Yes	No	
DateTo	datetime	Yes	No	
DateCreate	datetime	Yes	No	
DueDate	datetime	Yes	No	
IsFirstRentalPayment	bit	Yes	No	

*Table 51 - Database Description - Table ContractPayment***2.28 Table Invoices**

Field Name	Type	Allow Nulls	Unique	PK/FK
Invoiceld	nvarchar(100)	No	Yes	PK
ComponentReplacementTicketId	nvarchar(100)	No	No	FK

AccountPaidId	int	No	No	FK
DigitalTransactionId	nvarchar(100)	No	No	FK
Amount	float	Yes	No	
PaymentMethod	nvarchar(50)	Yes	No	
Type	nvarchar(100)	Yes	No	
Note	nvarchar(max)	Yes	No	
DateCreate	datetime	Yes	No	
DatePaid	datetime	Yes	No	
Status	nvarchar(50)	Yes	No	
PayOsOrderId	nvarchar(100)	Yes	No	
PaymentConfirmationUrl	nvarchar(255)	Yes	No	

Table 52 - Database Description - Table Invoices

**2.29 Table DigitalTransactions**

Field Name	Type	Allow Nulls	Unique	PK/FK
DigitalTransactionId	nvarchar(100)	No	Yes	PK
Invoiceld	nvarchar(100)	No	No	FK
AccountNumber	nvarchar(100)	Yes	No	
AccountName	nvarchar(100)	Yes	No	
BankCode	nvarchar(100)	Yes	No	
BankName	nvarchar(100)	Yes	No	
Amount	float	Yes	No	
Description	nvarchar(max)	Yes	No	
TransactionDate	datetime	Yes	No	
PayOsOrderId	nvarchar(100)	Yes	No	

*Table 53 - Database Description - Table DigitalTransactions***2.30 Table DeliveryTask**

Field Name	Type	Allow Nulls	Unique	PK/FK
DeliveryTaskId	int	No	Yes	PK
StaffId	int	No	No	FK
ManagerId	int	No	No	FK
DateShip	datetime	Yes	No	
DateCreate	datetime	Yes	No	
DateCompleted	datetime	Yes	No	
Status	nvarchar(50)	Yes	No	
Note	nvarchar(max)	Yes	No	
ConfirmationPictureUrl	nvarchar(255)	Yes	No	
ReceiverName	nvarchar(100)	Yes	No	
DeliveryVehicleCounter	int	Yes	No	

*Table 54 - Database Description - Table DeliveryTask***2.31 Table DeliveryTaskLog**

Field Name	Type	Allow Nulls	Unique	PK/FK
DeliveryTaskLogId	int	No	Yes	PK
DeliveryTaskId	int	No	No	FK
Action	nvarchar(255)	Yes	No	
DateCreate	datetime	Yes	No	
AccountTriggerId	int	No	No	FK

*Table 55 - Database Description - Table DeliveryTaskLog***2.32 Table ContractDelivery**

Field Name	Type	Allow Nulls	Unique	PK/FK
ContractDeliveryId	int	No	Yes	PK
DeliveryTaskId	int	No	No	FK

ContractId	nvarchar(100)	No	No	FK
PictureUrl	nvarchar(255)	Yes	No	
Note	nvarchar(max)	Yes	No	
Status	nvarchar(50)	Yes	No	

*Table 56 - Database Description - Table ContractDelivery***2.33 Table MachineCheckRequest**

Field Name	Type	Allow Nulls	Unique	PK/FK
MachineCheckRequestId	nvarchar(100)	No	Yes	PK
ContractId	nvarchar(100)	No	No	FK
MachineTaskId	int	No	No	FK
Note	nvarchar(max)	Yes	No	
Status	nvarchar(50)	Yes	No	
DateCreate	datetime	Yes	No	

*Table 57 - Database Description - Table MachineCheckRequest***2.34 Table MachineCheckCriteria**

Field Name	Type	Allow Nulls	Unique	PK/FK
MachineCheckCriteriaId	int	No	Yes	PK
Name	nvarchar(100)	Yes	No	

*Table 58 - Database Description - Table MachineCheckCriteria***2.35 Table MachineCheckRequestCriteria**

Field Name	Type	Allow Nulls	Unique	PK/FK
MachineCheckRequestCriteriaId	int	No	Yes	PK
MachineCheckRequestId	nvarchar(100)	No	No	FK
CriteriaName	nvarchar(100)	Yes	No	
CustomerNote	nvarchar(max)	Yes	No	

*Table 59 - Database Description - Table MachineCheckRequestCriteria***2.36 Table MachineTask**

Field Name	Type	Allow Nulls	Unique	PK/FK
MachineTaskId	int	No	Yes	PK
TaskTitle	nvarchar(100)	Yes	No	
StaffId	int	No	No	FK
ManagerId	int	No	No	FK
ContractId	nvarchar(100)	No	No	FK
MachineCheckRequestId	nvarchar(100)	No	No	FK
Content	nvarchar(max)	Yes	No	
Type	nvarchar(100)	Yes	No	
DateCreate	datetime	Yes	No	
DateCompleted	datetime	Yes	No	
DateStart	datetime	Yes	No	
Status	nvarchar(50)	Yes	No	
Note	nvarchar(max)	Yes	No	
ConfirmationPictureUrl	nvarchar(255)	Yes	No	

*Table 60 - Database Description - Table MachineTask***2.37 Table MachineTaskLog**

Field Name	Type	Allow Nulls	Unique	PK/FK
MachineTaskLogId	int	No	Yes	PK
MachineTaskId	int	No	No	FK
Action	nvarchar(max)	Yes	No	
DateCreate	datetime	Yes	No	
AccountTriggerId	int	No	No	FK

*Table 61 - Database Description - Table MachineTaskLog***2.38 Table ComponentReplacementTicket**

Field Name	Type	Allow Nulls	Unique	PK/FK
ComponentReplacementTicketId	nvarchar(100)	No	Yes	PK
MachineSerialNumberComponentId	int	No	No	FK
EmployeeCreateId	int	No	No	FK
MachineTaskCreateId	int	No	No	FK
ComponentId	int	No	No	FK
ContractId	nvarchar(100)	No	No	FK
InvoiceId	nvarchar(100)	No	No	FK
DateRepair	datetime	Yes	No	
DateCreate	datetime	Yes	No	
ComponentPrice	float	Yes	No	
Quantity	int	Yes	No	
AdditionFee	float	Yes	No	
TotalAmount	float	Yes	No	
Type	nvarchar(100)	Yes	No	
Status	nvarchar(50)	Yes	No	
Note	nvarchar(max)	Yes	No	

*Table 62 - Database Description - Table ComponentReplacementTicket***2.39 Table ComponentReplacementTicketLog**

Field Name	Type	Allow Nulls	Unique	PK/FK
ComponentReplacementTicketLogId	int	No	Yes	PK
ComponentReplacementTicketId	nvarchar(100)	No	No	FK
Action	nvarchar(255)	Yes	No	
DateCreate	datetime	Yes	No	

AccountTriggerId	int	No	No	FK
------------------	-----	----	----	----

Table 63 - Database Description - Table ComponentReplacementTicketLog

### 3. Detailed Design

#### 3.1 Create Employee Account

##### 3.1.1 Class Diagram Create Employee Account

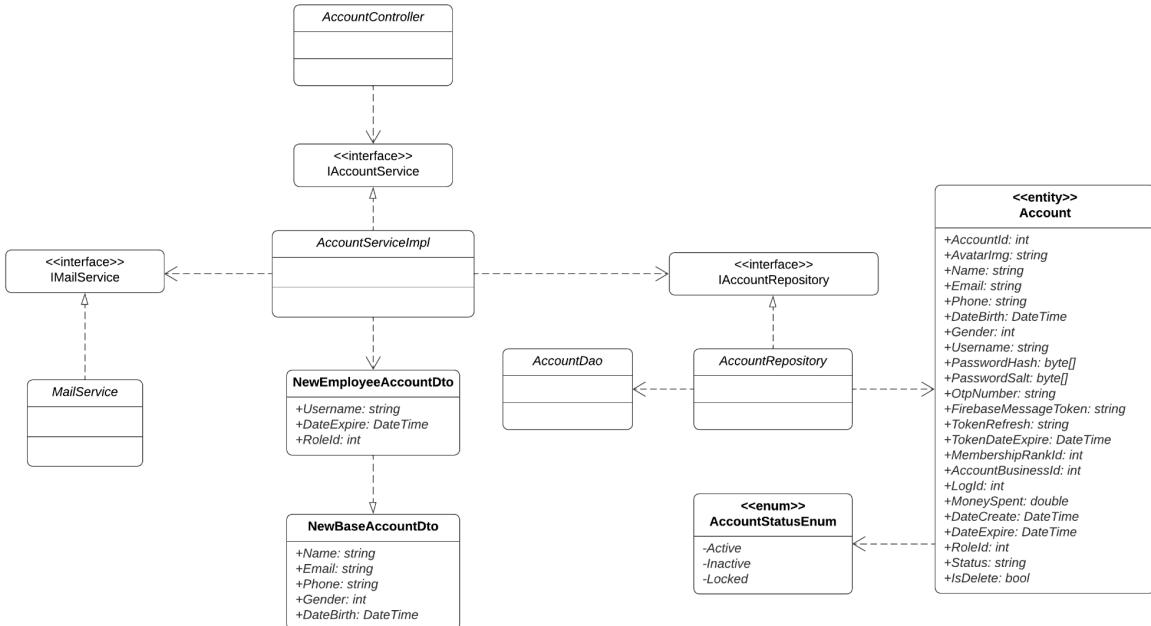


Figure 249: Class diagram of Create Employee Account

##### 3.1.2 Sequence Diagram Create Employee Account

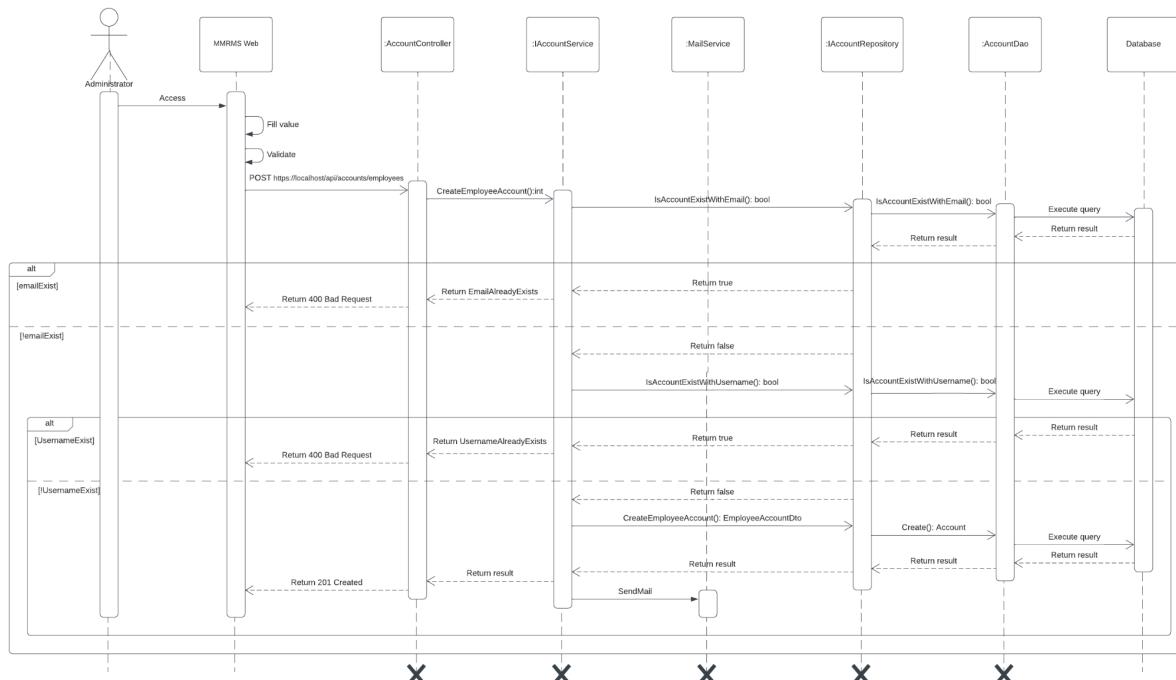


Figure 250: Sequence diagram of Create Employee Account

## 3.2 Create Renting Request

### 3.2.1 Class Diagram Create Renting Request

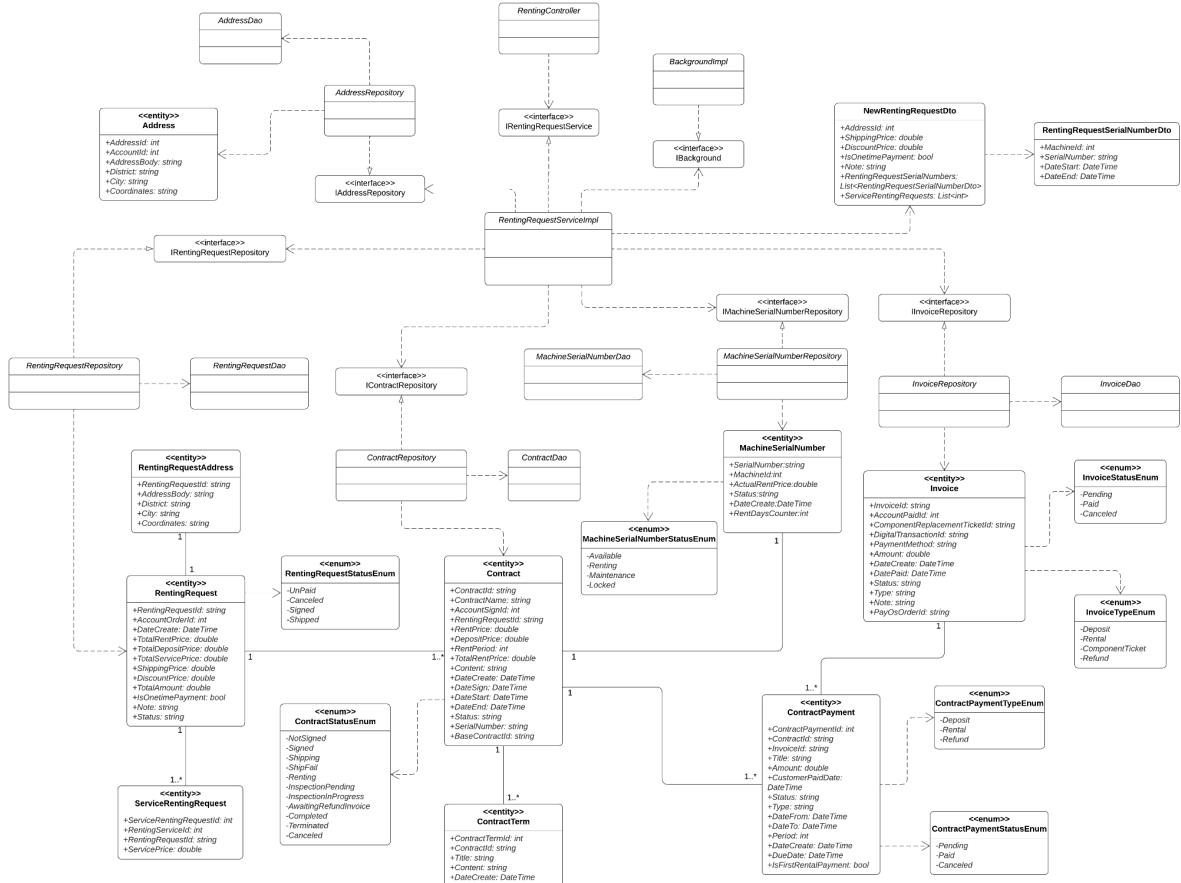


Figure 251: Class diagram of Create Renting Request

### 3.2.2 Sequence Diagram Create Renting Request

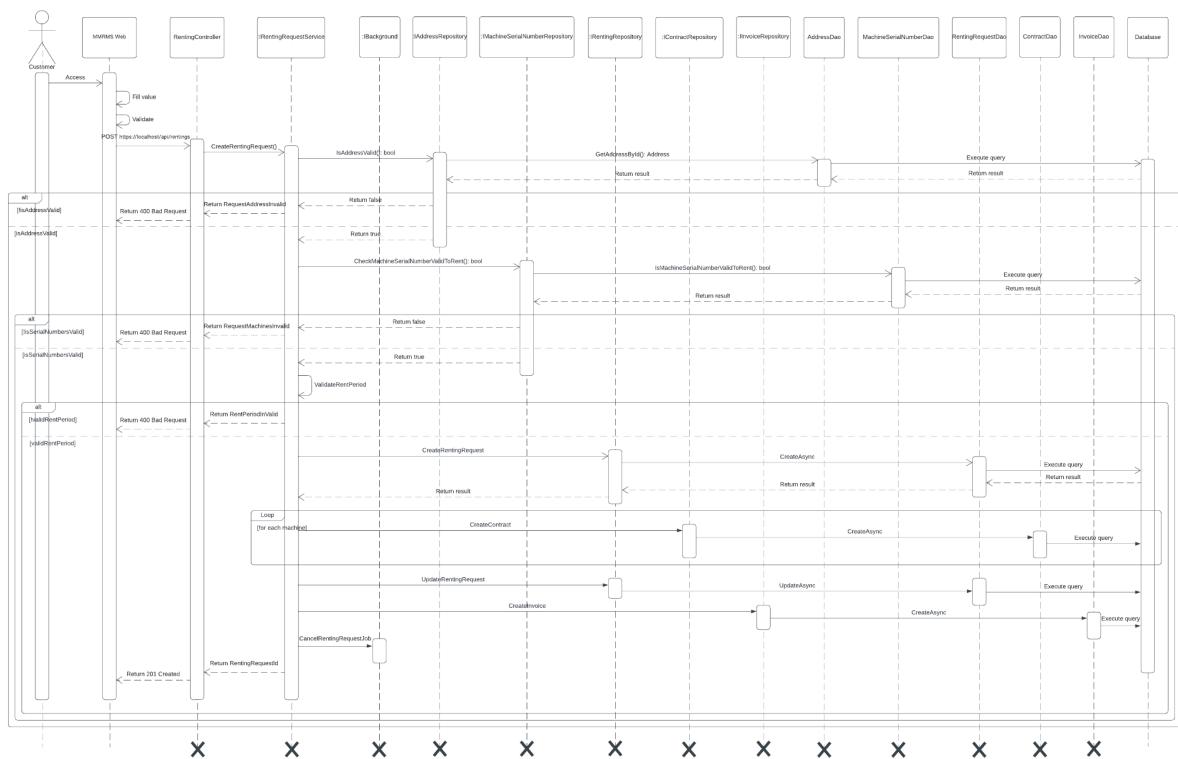
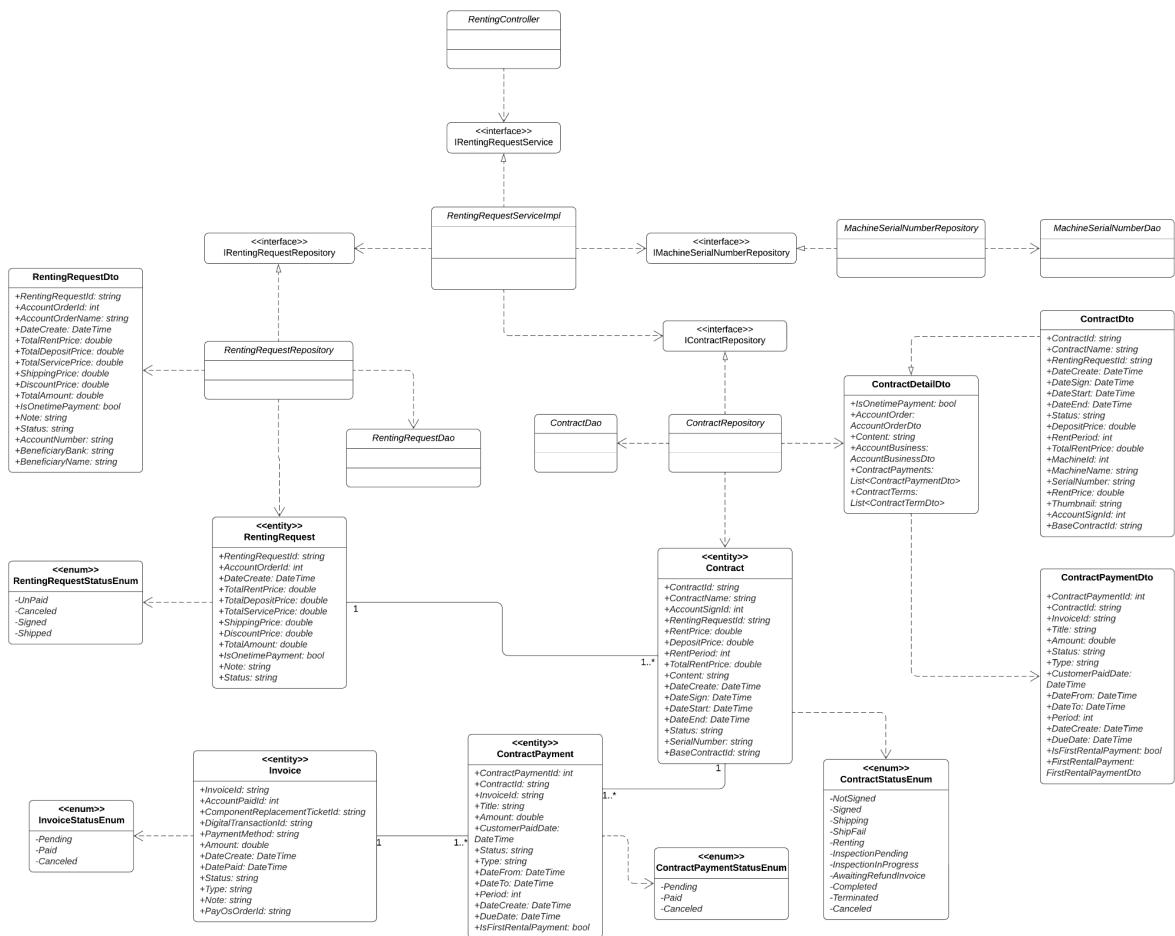


Figure 252: Sequence diagram of Create Renting Request

### **3.3 Cancel Renting Request**

### **3.3.1 Class Diagram Cancel Renting Request**



*Figure 253: Class diagram of Cancel Renting Request*

### 3.3.2 Sequence Diagram Cancel Renting Request

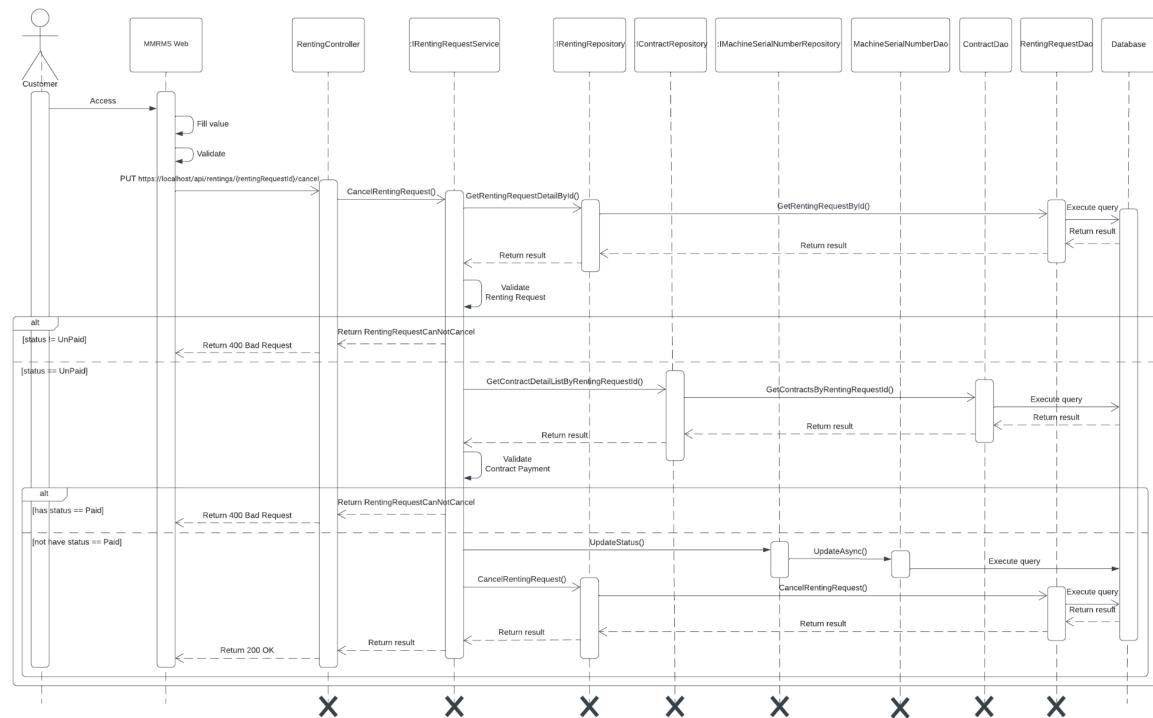


Figure 254: Sequence diagram of Cancel Renting Request

## 3.4 End Contract

### 3.4.1 Class Diagram End Contract

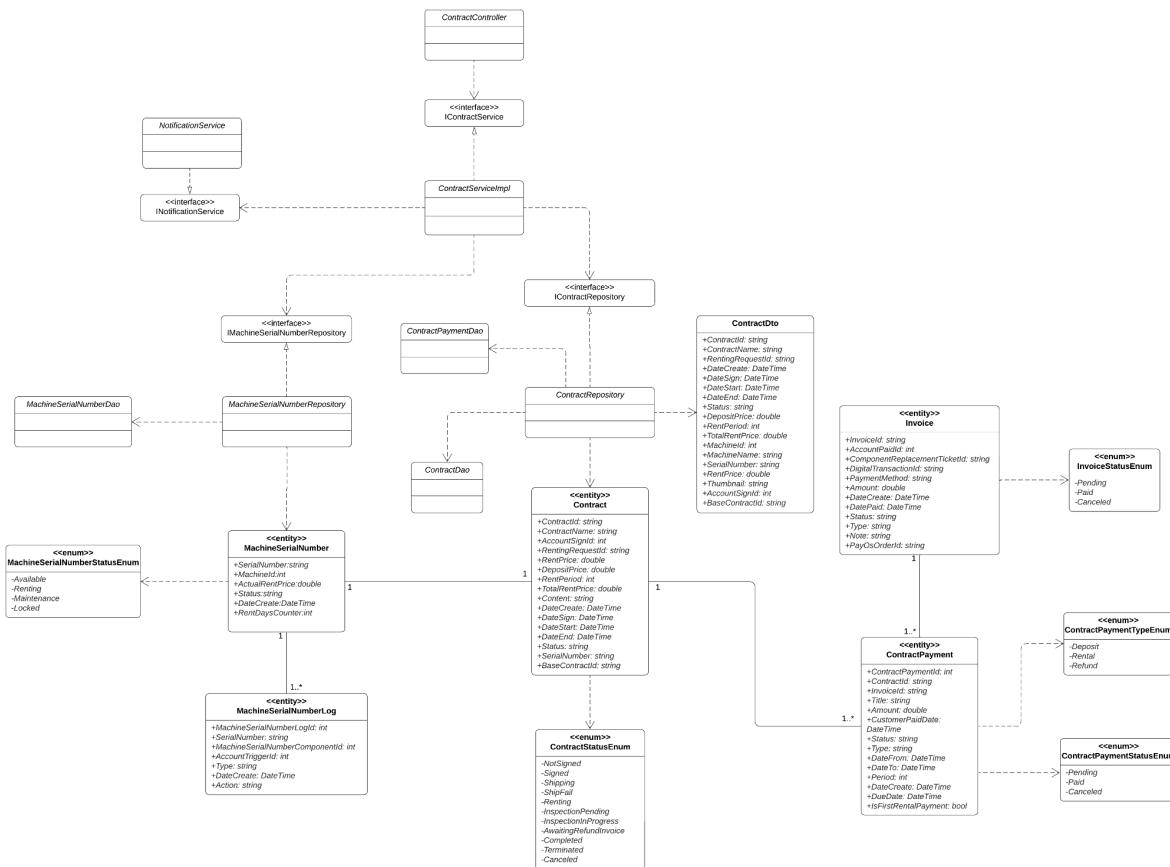


Figure 255: Class diagram of End Contract

### 3.4.2 Sequence Diagram End Contract

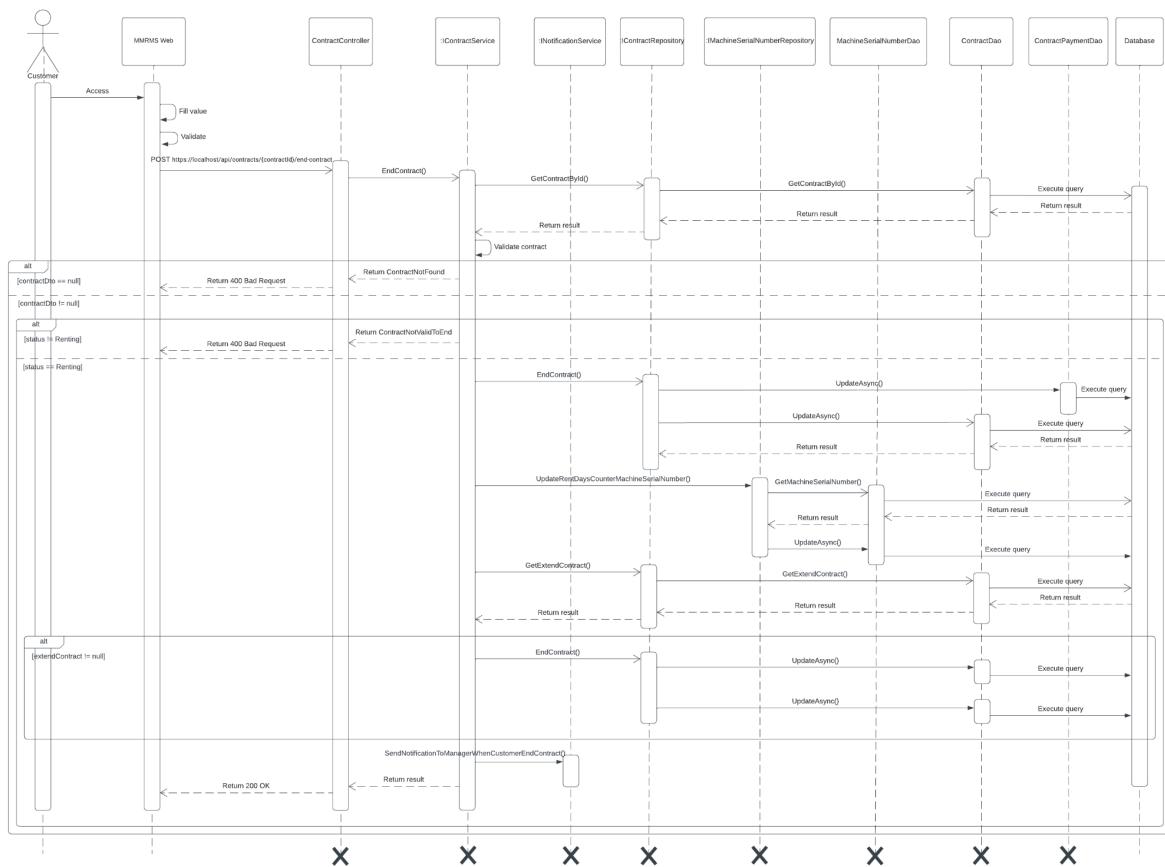


Figure 256: Sequence diagram of End Contract

## 3.5 Create Refund Invoice

### 3.5.1 Class Diagram Create Refund Invoice

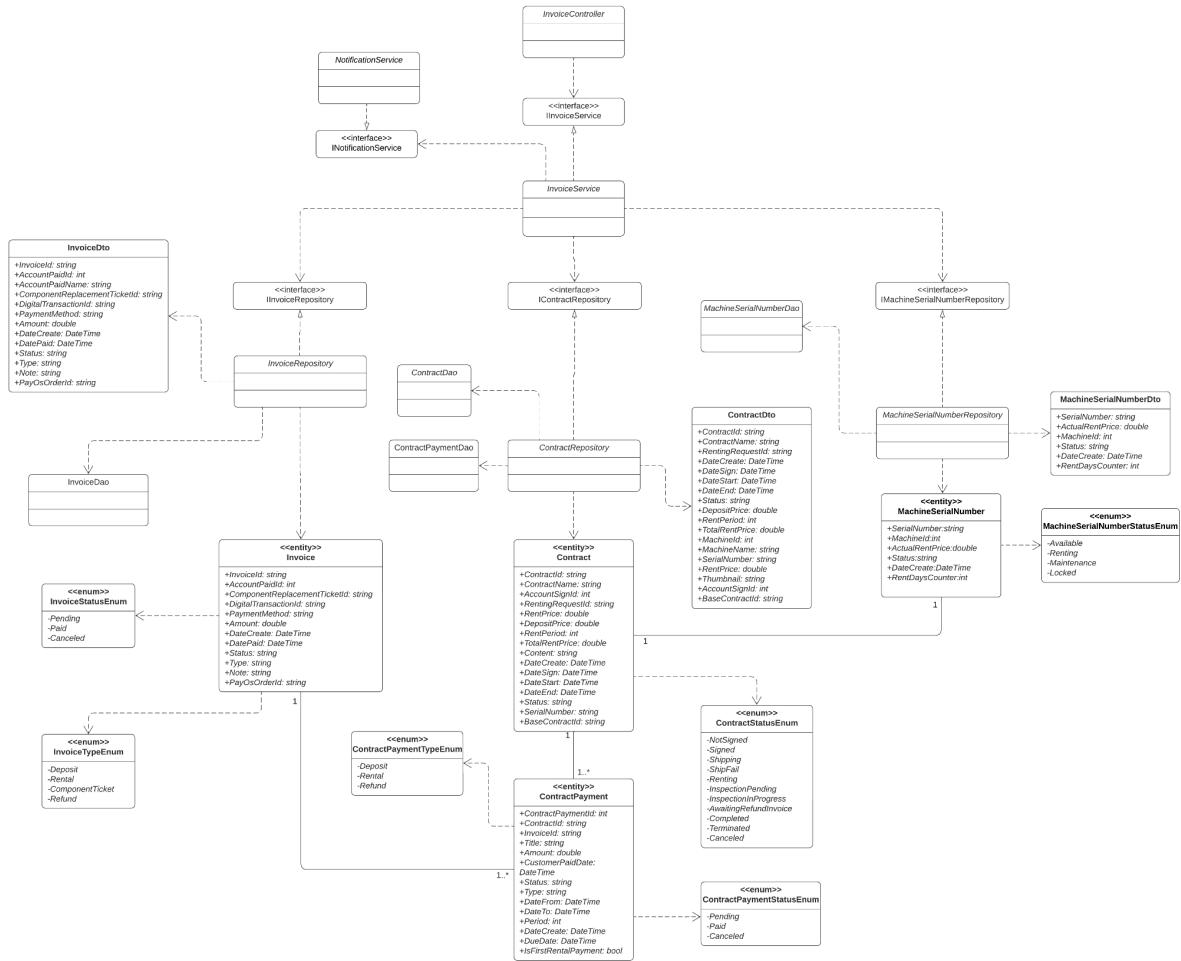
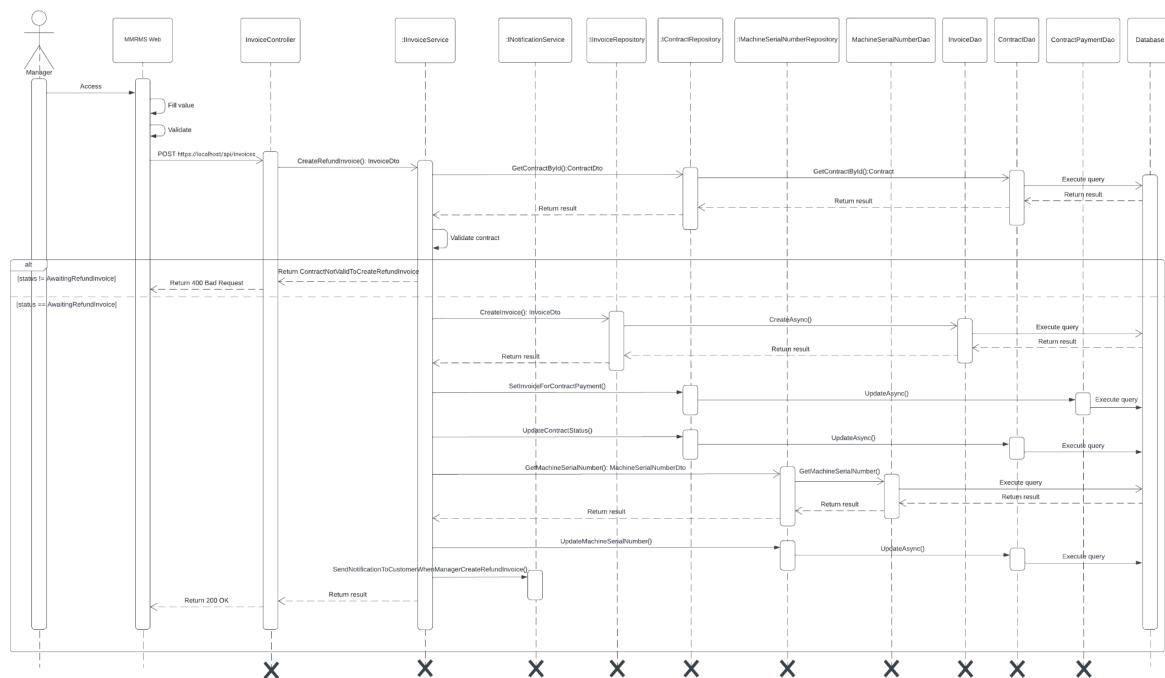


Figure 257: Class diagram of Create Refund Invoice

### **3.5.2 Sequence Diagram Create Refund Invoice**



*Figure 258: Sequence diagram of Create Refund Invoice*

## 3.6 Extend Contract

### 3.6.1 Class Diagram Extend Contract

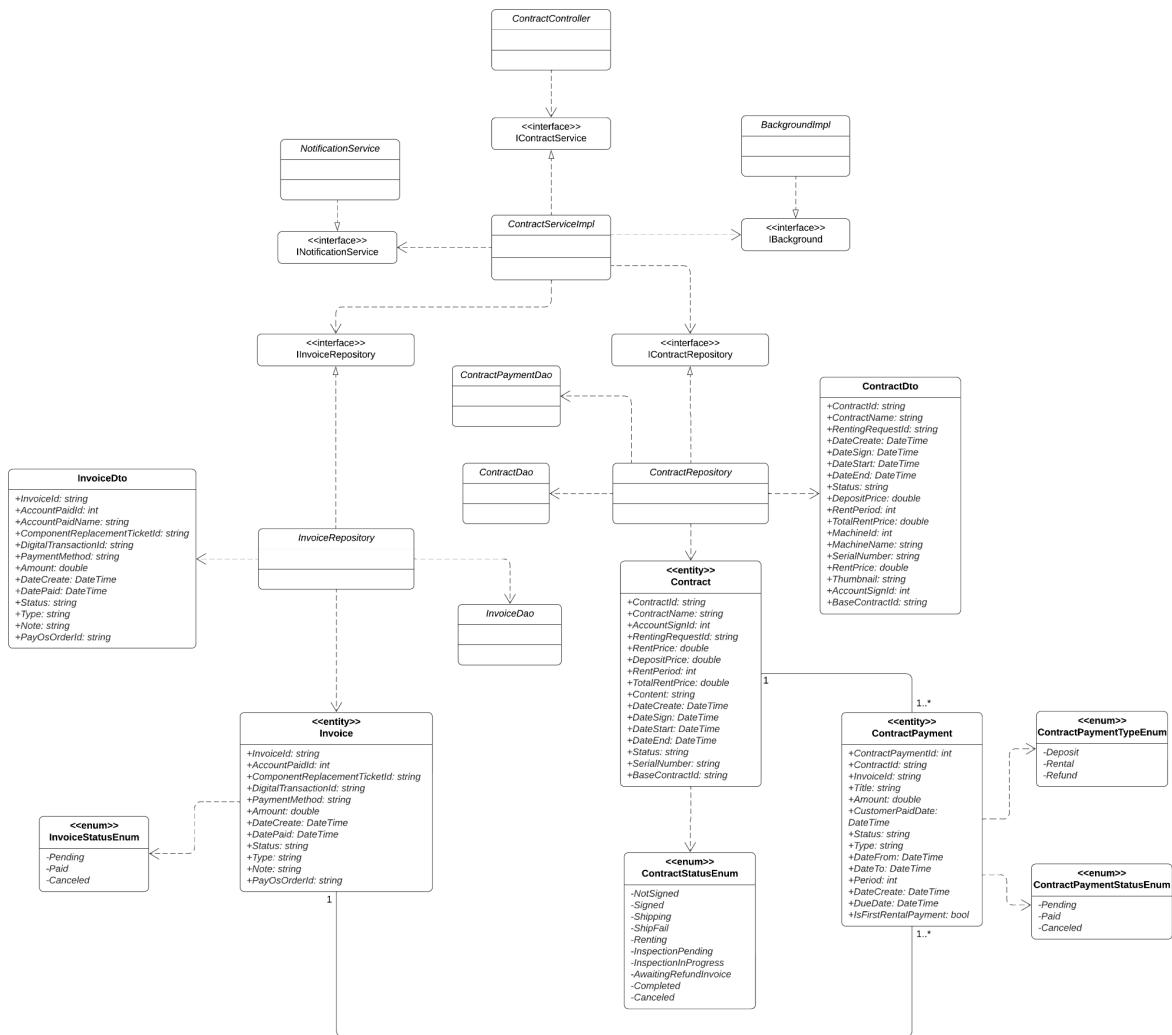


Figure 259: Class diagram of Extend Contract

### 3.6.2 Sequence Diagram Extend Contract

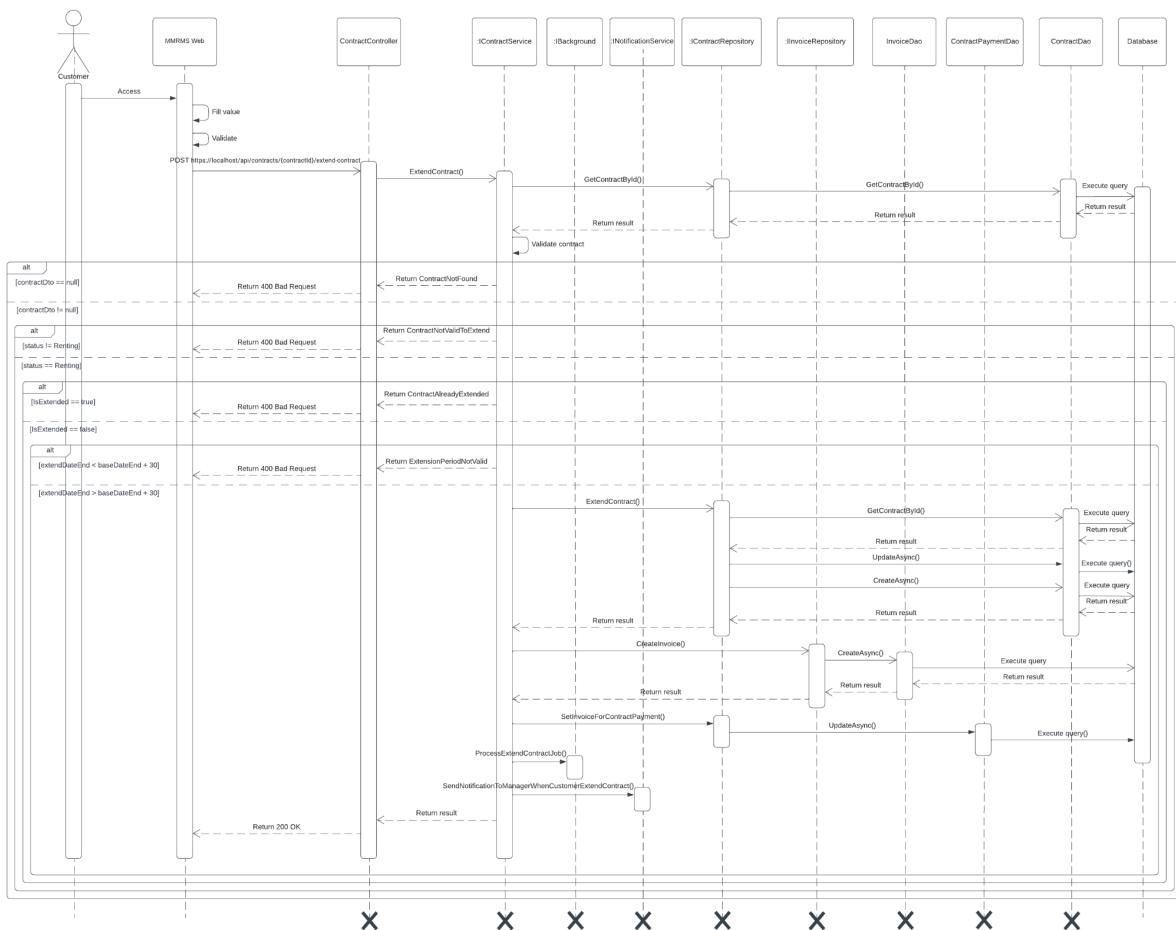


Figure 260: Sequence diagram of Extend Contract

## 3.7 Login Email

### 3.7.1 Class Diagram Login Email

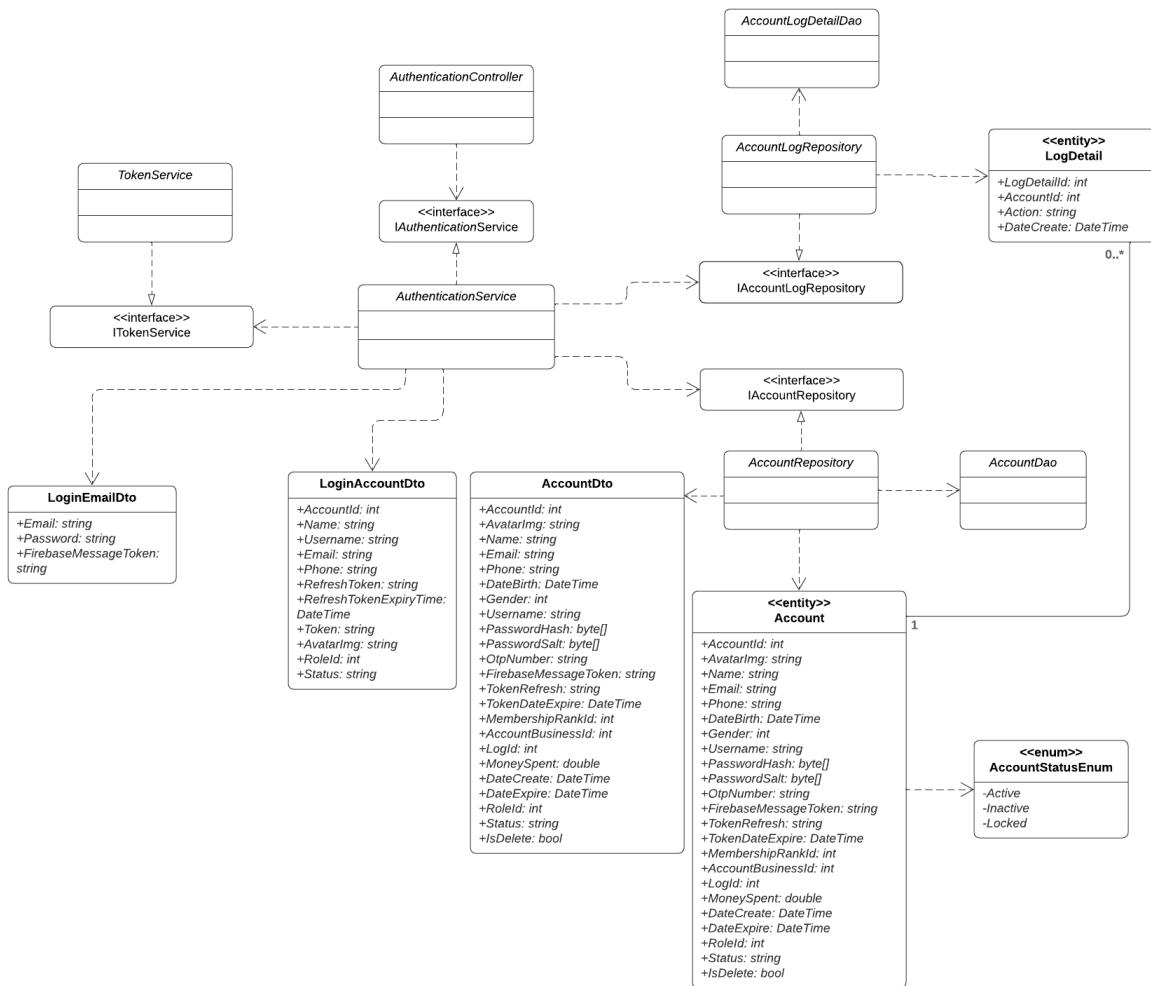


Figure 261: Class diagram of Login Email

### 3.7.2 Sequence Diagram Login Email

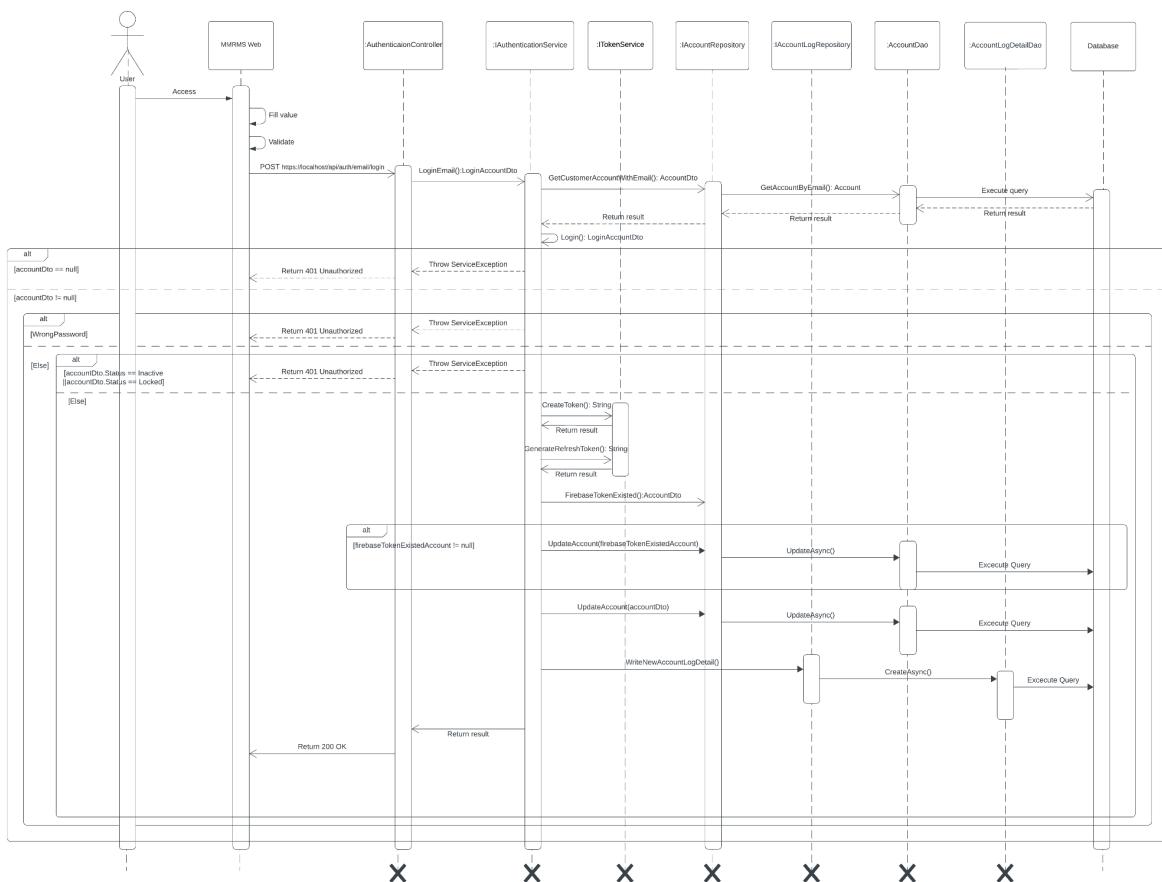


Figure 262: Sequence diagram of Login Email

## 3.8 Login Username

### 3.8.1 Class Diagram Login Username

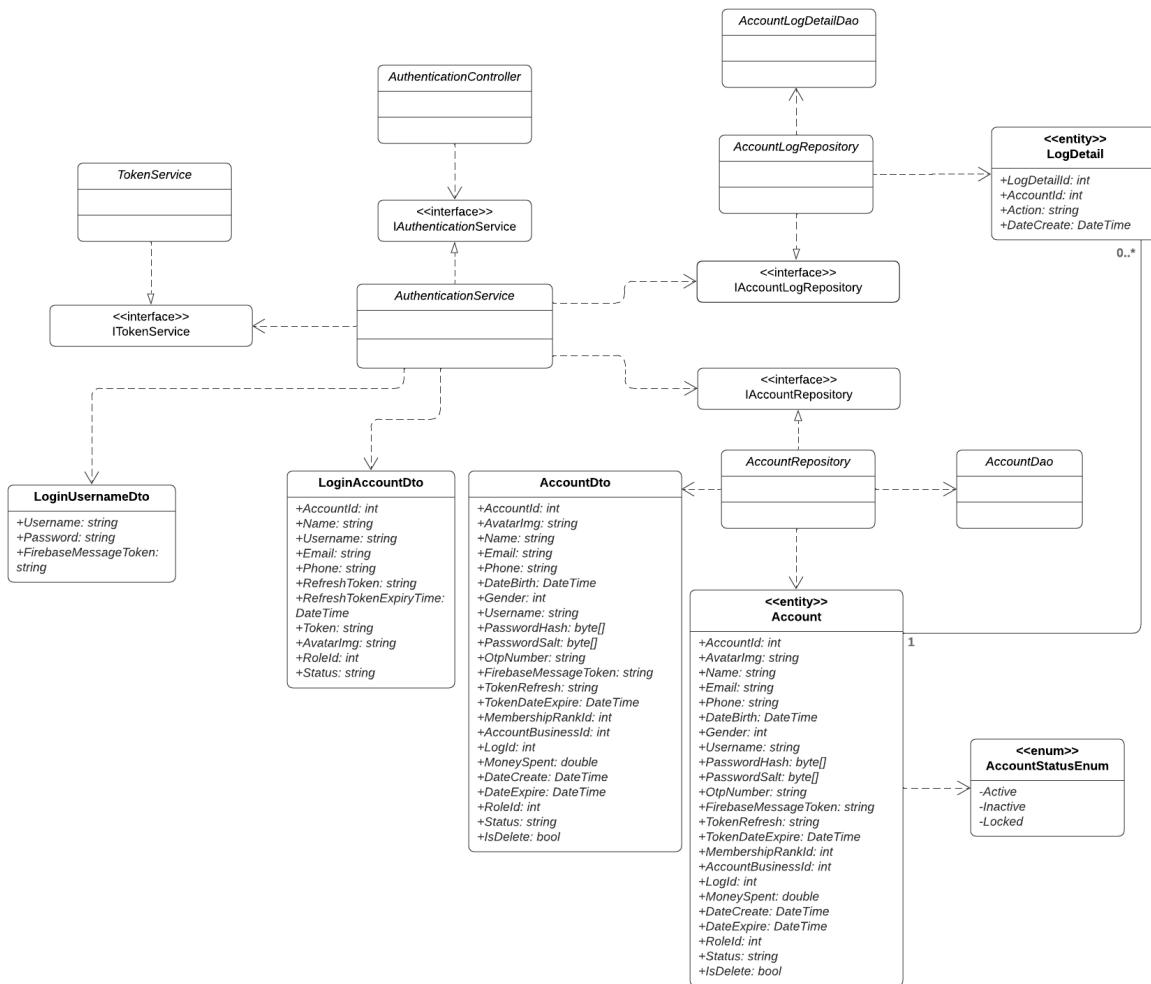
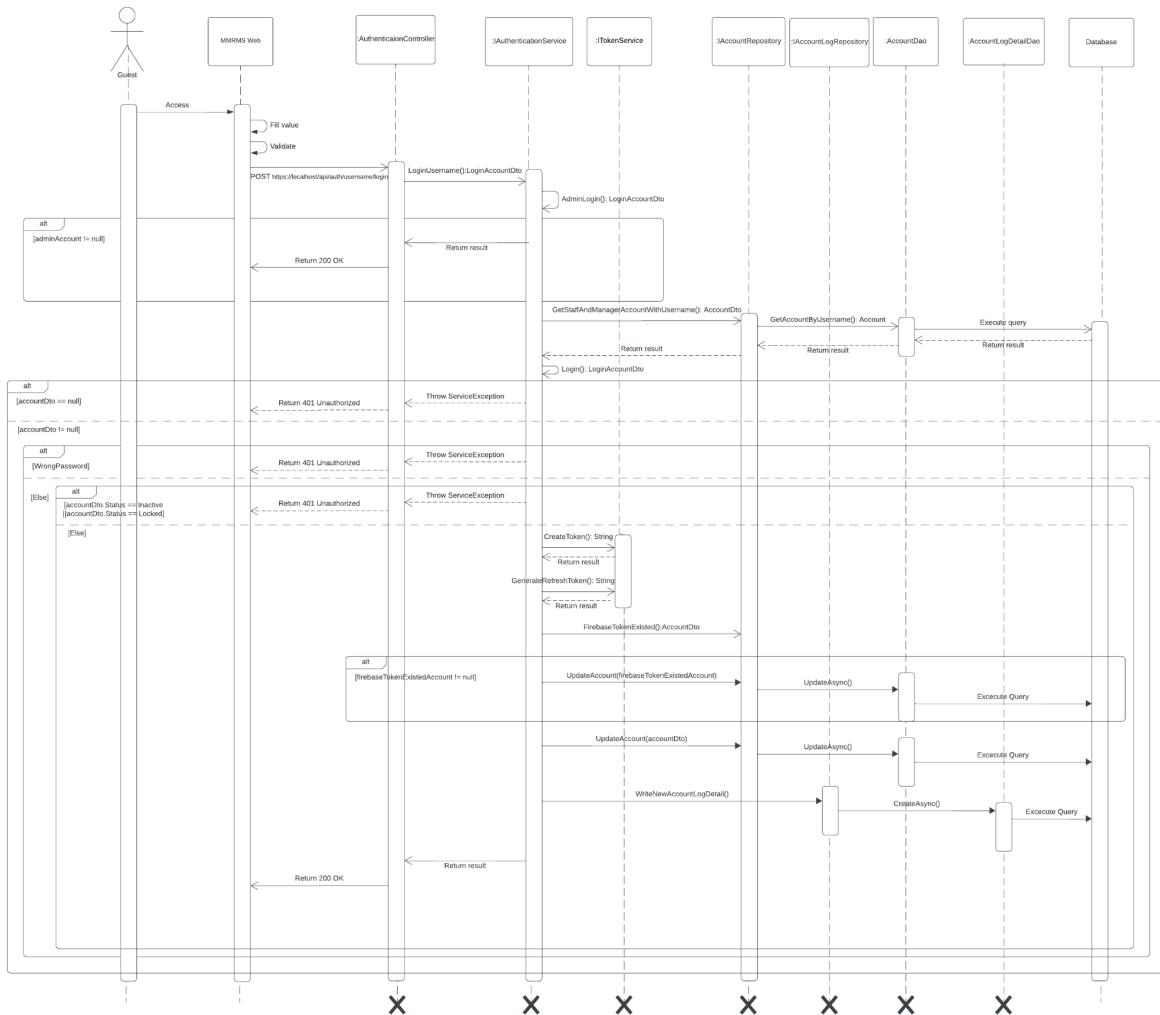


Figure 263: Class diagram of Login Username

### **3.8.2 Sequence Diagram Login Username**



*Figure 264: Sequence diagram of Login Username*

## 3.9 Register

### 3.9.1 Class Diagram Register

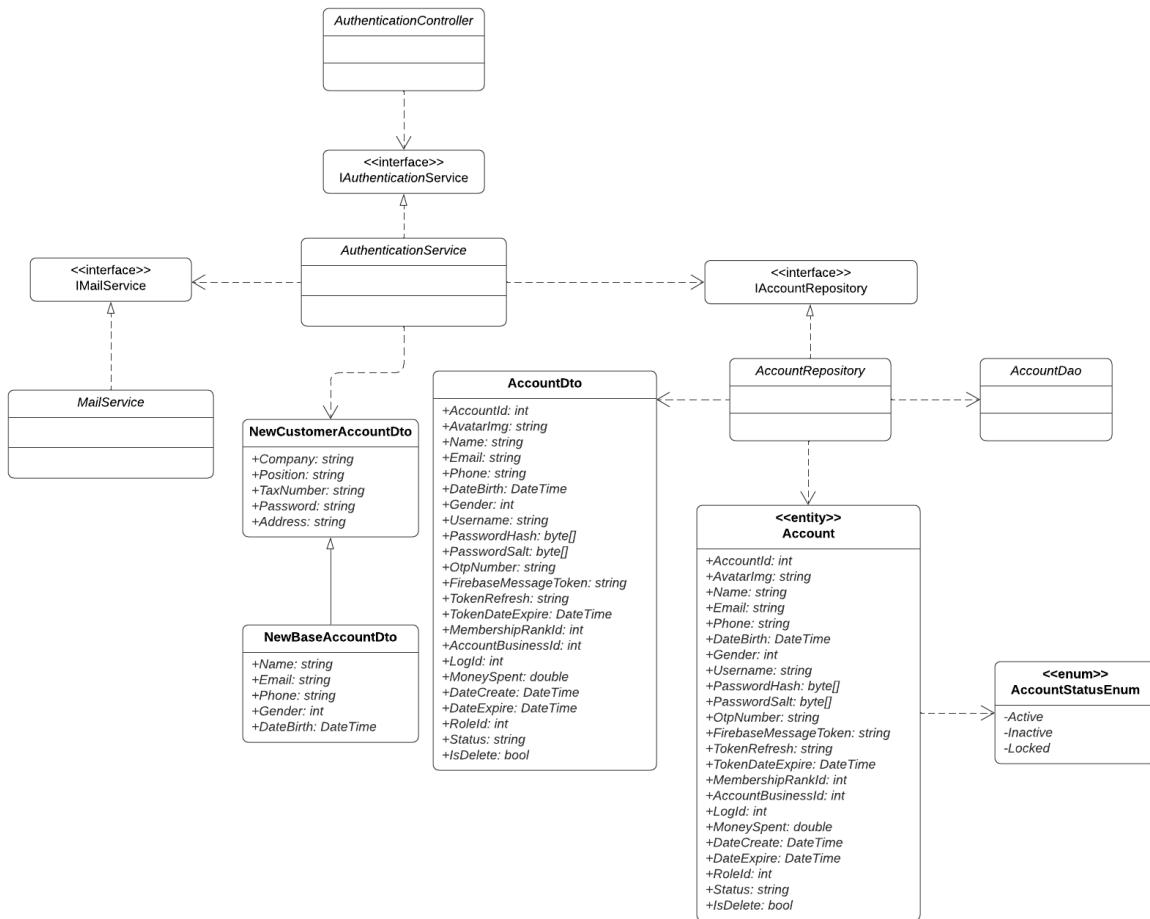


Figure 265: Class diagram of Register

### 3.9.2 Sequence Diagram Register

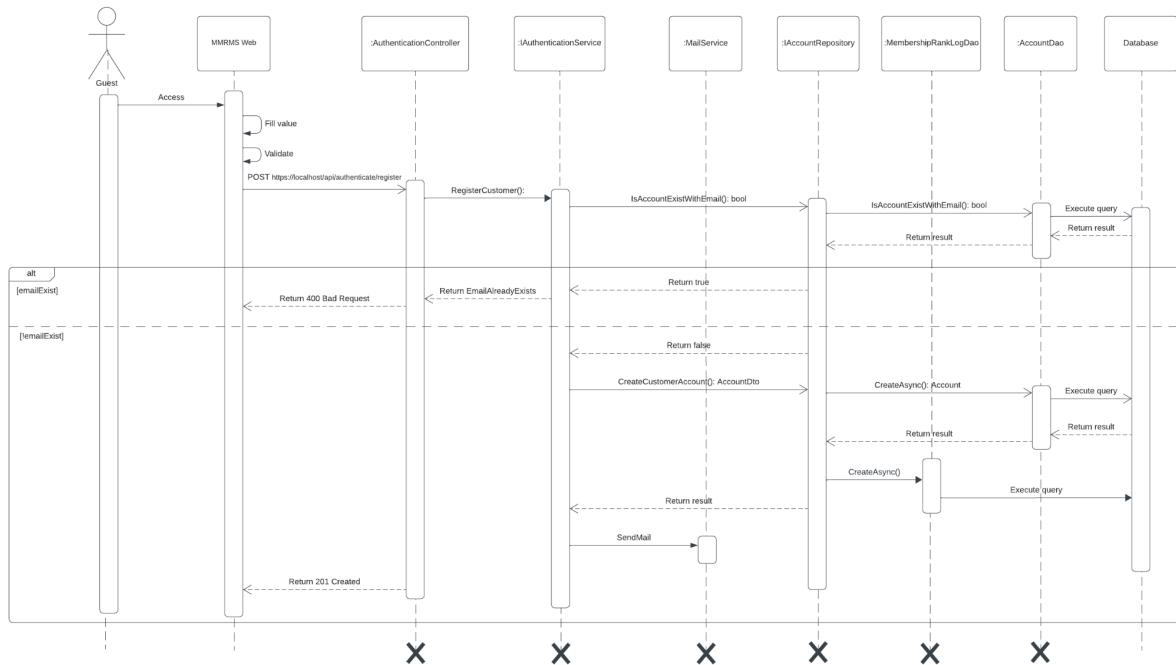


Figure 266: Sequence diagram of Register

## 3.10 Create Machine

### 3.10.1 Class Diagram Create Machine

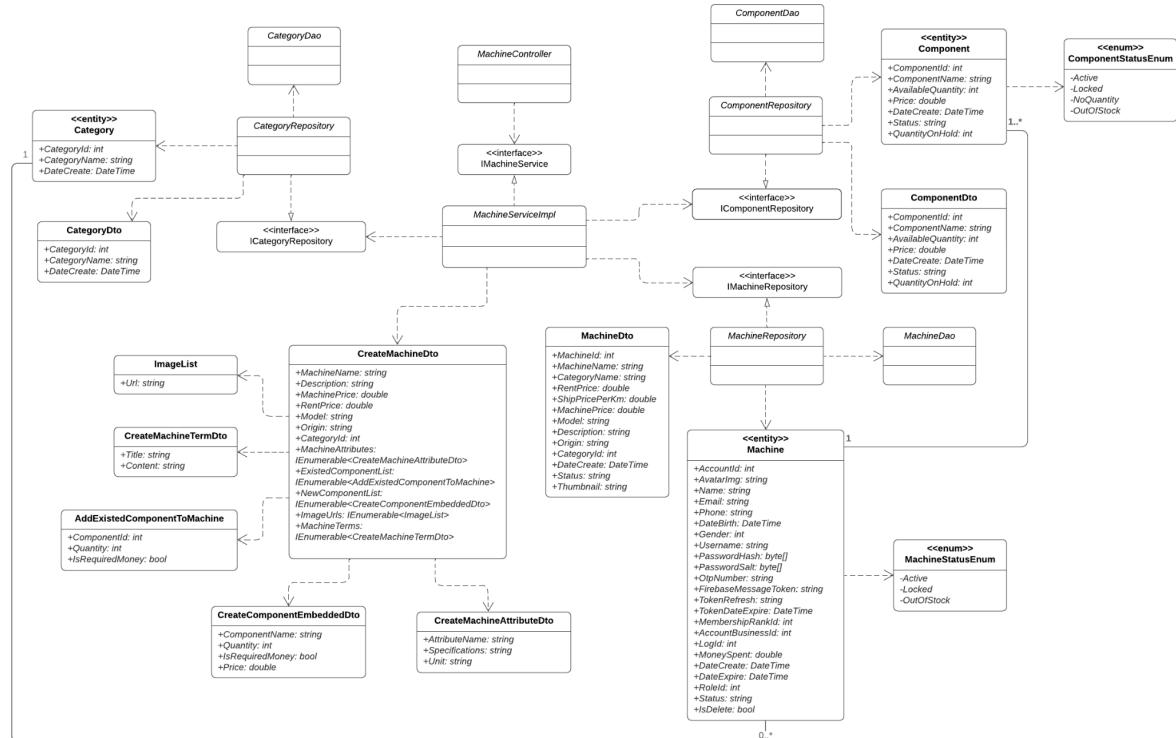


Figure 267: Class diagram of Create Machine

### 3.10.2 Sequence Diagram Create Machine

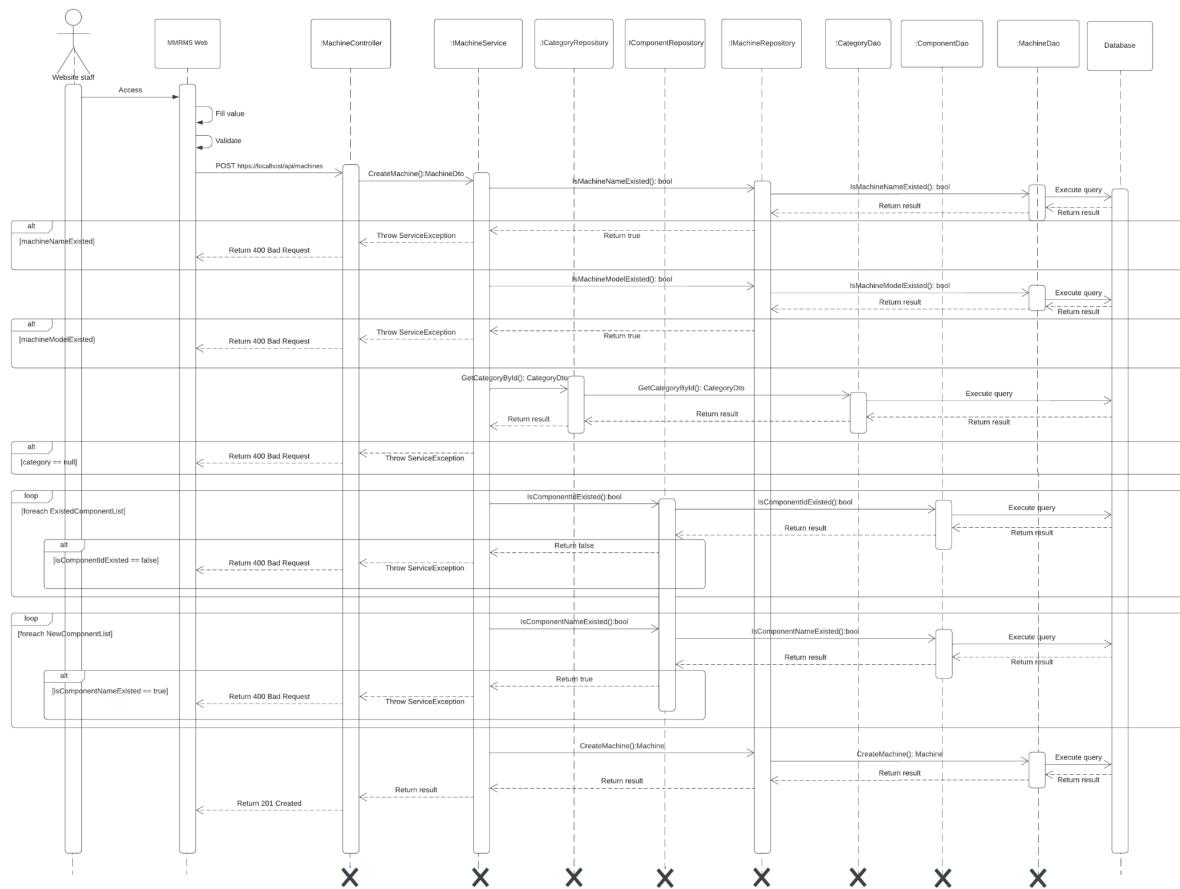


Figure 268: Sequence diagram of Create Machine

## 3.11 Create Machine Task

### 3.11.1 Class Diagram Create Machine Task

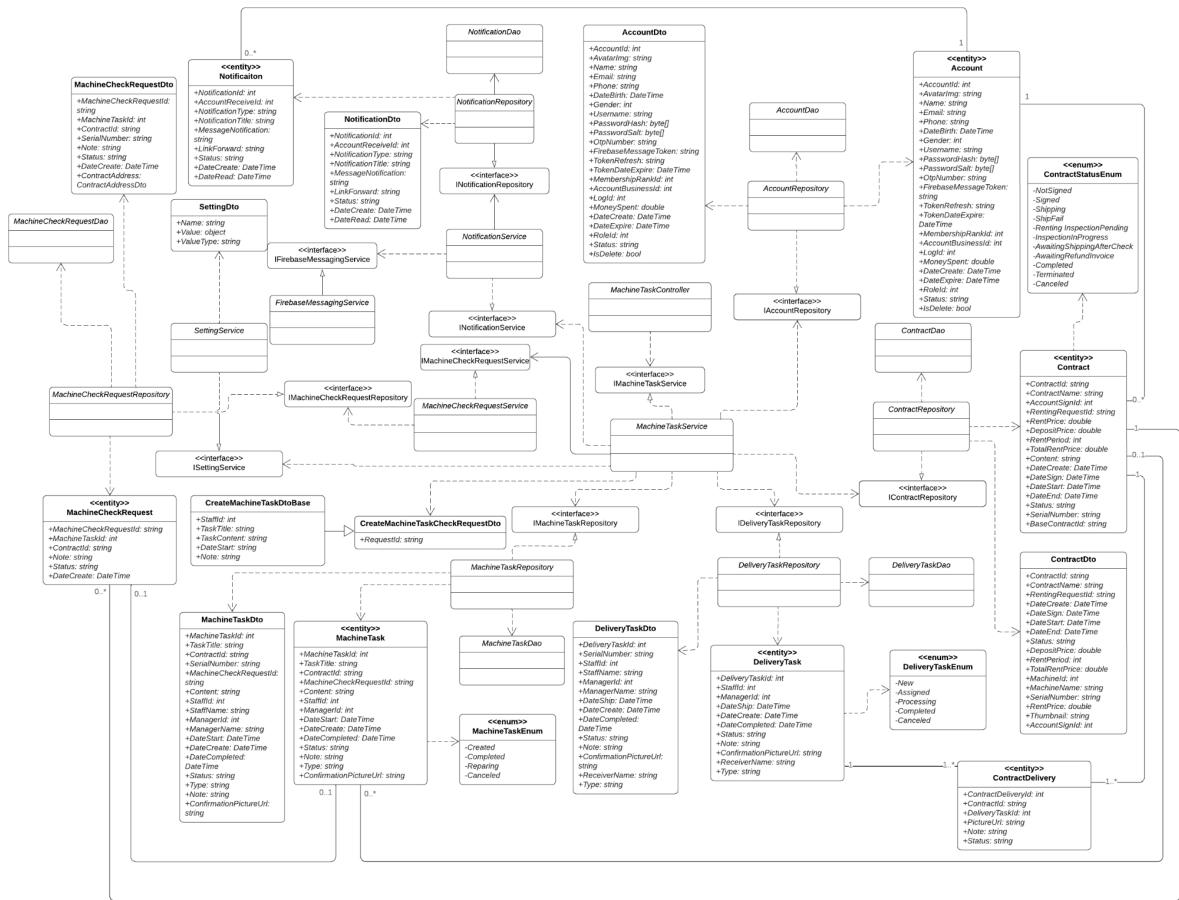


Figure 269: Class diagram of Create Machine Task

### 3.11.2 Sequence Diagram Create Machine Task

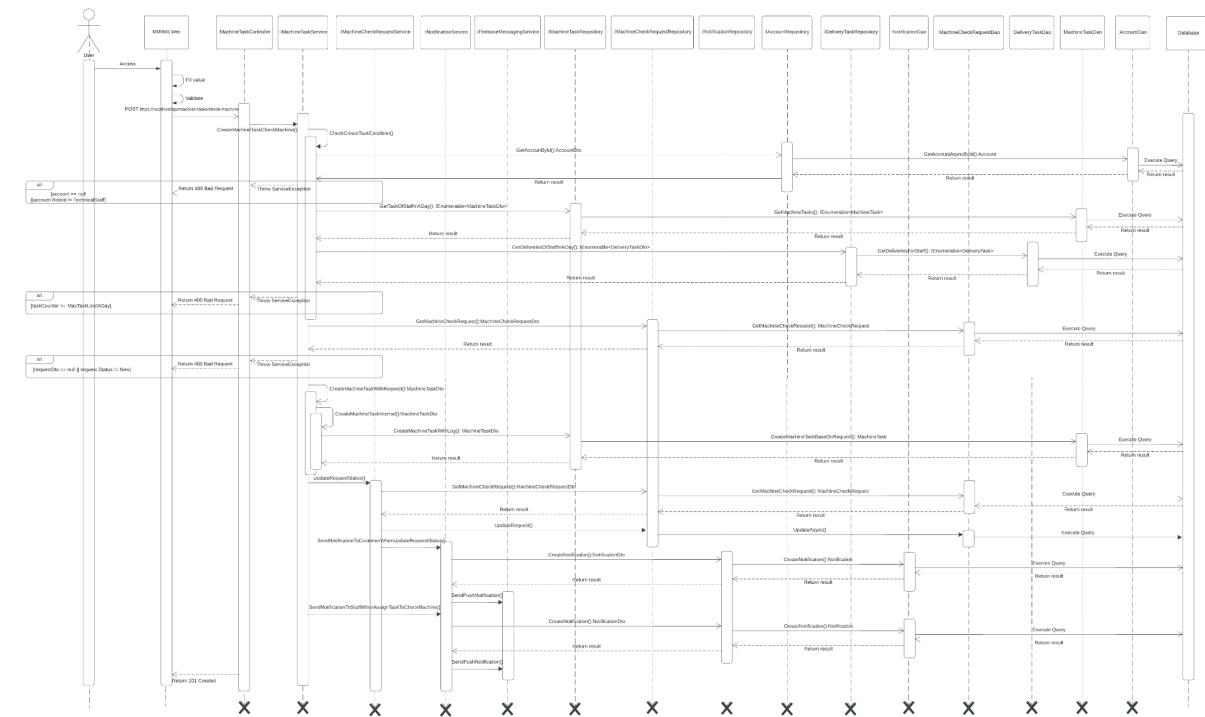


Figure 270: Sequence diagram of Create Machine Task

## 3.12 Create Component Replacement Ticket

### 3.12.1 Class Diagram Create Component Replacement Ticket

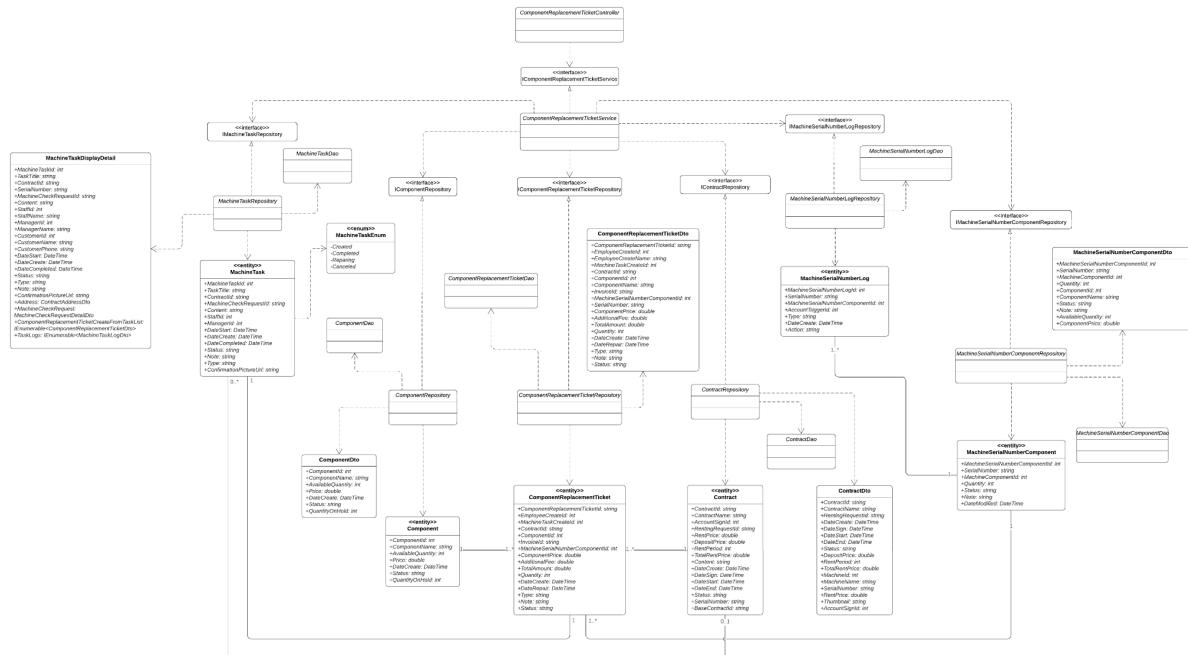


Figure 271: Class diagram of Create Component Replacement Ticket

### 3.12.2 Sequence Diagram Create Component Replacement Ticket

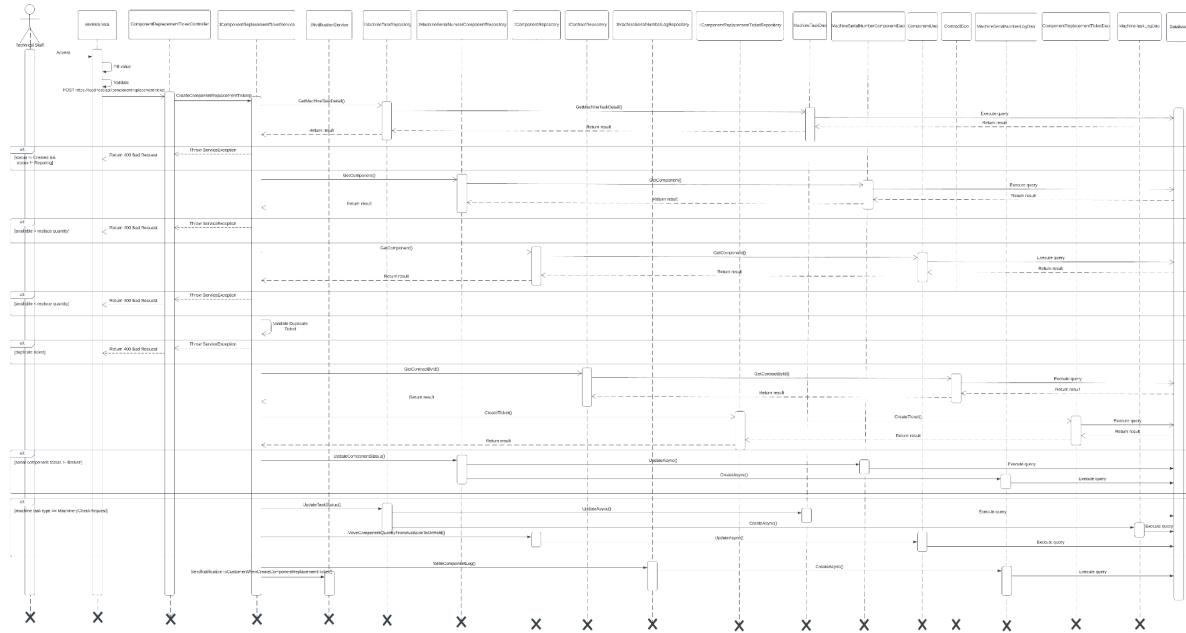


Figure 272: Sequence diagram of Create Component Replacement Ticket

## 3.13 Create Delivery Task

### 3.13.1 Class Diagram Create Delivery Task

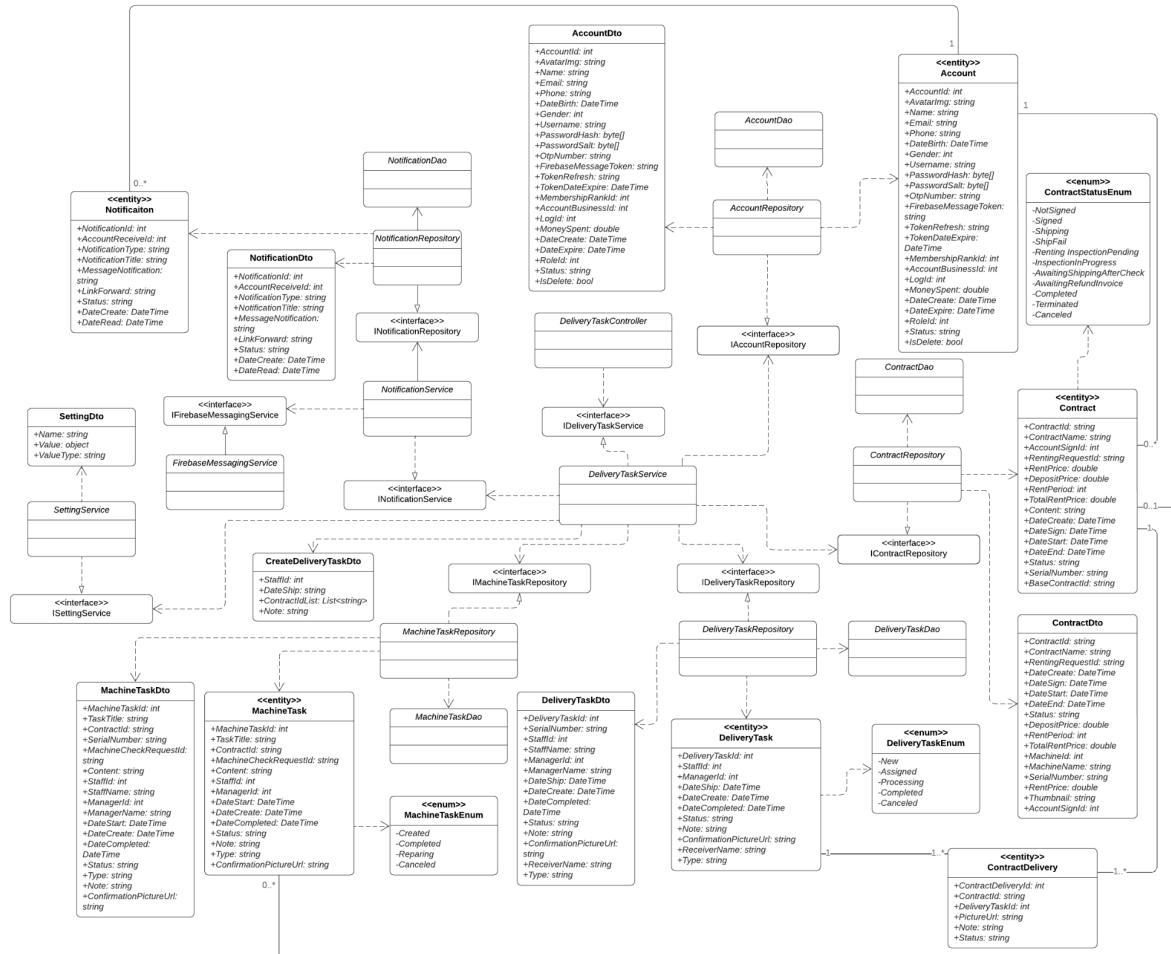


Figure 273: Class diagram of Create Delivery Task

### 3.13.2 Sequence Diagram Create Delivery Task

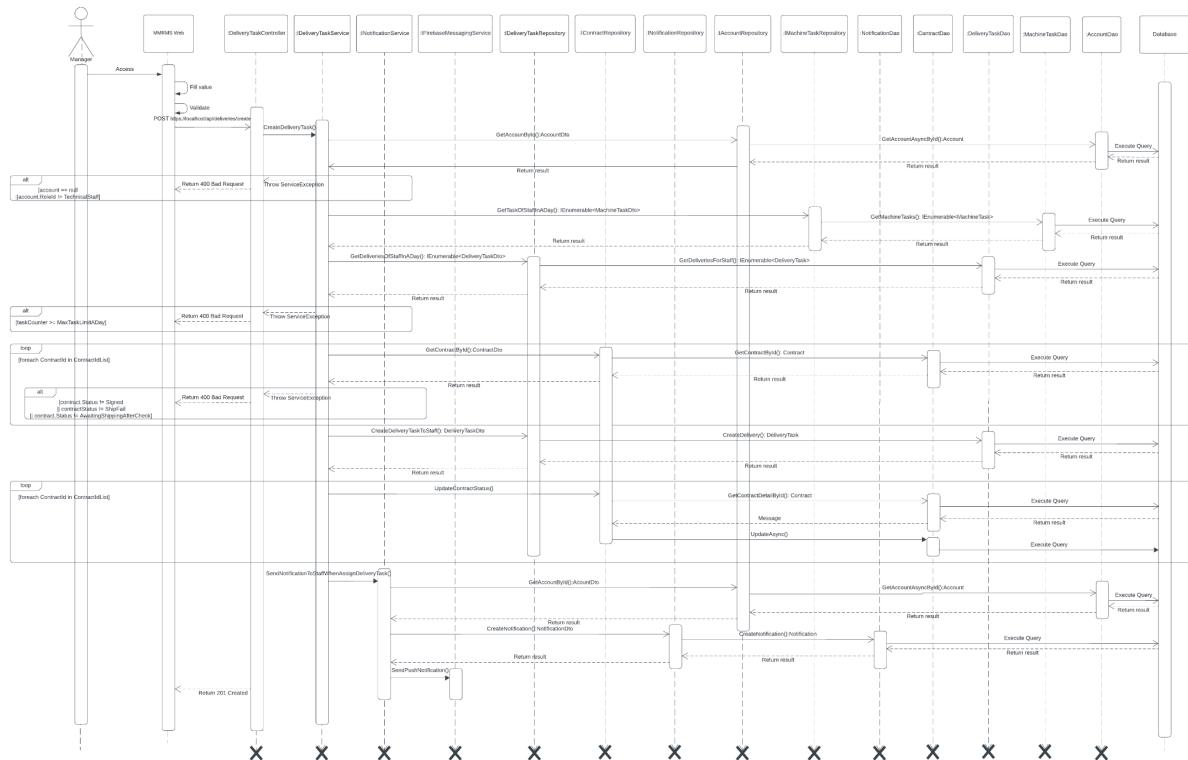


Figure 274: Sequence diagram of Create Delivery Task

## V. Software Testing Documentation

### 1. Scope of Testing

#### 1.1 In Scope

Feature	Function	Actors	Use Case Description
Account	Register	Guest	Allows "Guest" to create a new account.
	Login	Customer, Web Staff, Technical Staff, Manager, Admin	Allows User to login with their Role.
	Reset Password	Customer	Allows "Customer" to reset password if forgot.
Manage Profile	View Profile	Customer, Web Staff, Technical Staff, Manager	Allows "Customer" after login to view their personal information.
	Update Profile		Allows "Customer" after login to update their personal information.
	Change Password		Allows "Customer" after login to change their password.
Manage Staff Account	View Staff Account	Admin, Manager	Allows "Admin" or "Manager" after login to view list staff account.
	View Staff Detail		Allows "Administrator" after login to view detail staff account.
	Create Staff Account	Admin	Allows "Administrator" after login to create staff account.
	Enable Staff Account		Allows "Administrator" after login to enable staff account.

	Disable Staff Account		Allows “Administrator” after login to disable staff account.
Manage Customer	Enable Customer	Admin	Allows “Administrator” after login to enable customer account.
	Disable Customer		Allows “Administrator” after login to disable customer account.
	View Customer List		Allows “Administrator” after login to view customer account list.
	View Customer Detail		Allows “Administrator” after login to view customer account detail.
Manage Log	View Account Log List	Admin	Allows “Administrator” after login to view the account log list.
Manage Content	View Content List	Web Staff	Allows “User” after login to view the content list.
	View Content Detail		Allows “User” after login to view the content detail.
	Create Content		Allows “User” after login to create new content.
	Update Content		Allows “User” after login to update content.
	Enable Content		Allows “User” after login to enable content.
	Disable Content		Allows “User” after login to disable content.
	Delete Content		Allows “User” after login to delete content.
	View Content List	Guest	Allows “Guest” to view content list.
	View Content Detail		Allows “Guest” to view content detail.
Manage Ranking Member	View Ranking Member List	Manager	Allows “Manager” after login to view ranking

			member list.
	View Ranking Member Detail		Allows “Manager” after login to view ranking member detail.
	Create Ranking Member		Allows “Manager” after login to create new ranking member.
	Update Ranking Member		Allows “Manager” after login to update ranking member.
	Delete Ranking Member		Allows “Manager” after login to delete ranking member.
Manage Renting Service	View Renting Service List	Web Staff, Customer	Allows “User” after login to view renting service list.
	View Renting Service Detail	Web Staff	Allows “User” after login to view renting service detail.
	Create Renting Service		Allows “Manager” after login to create new renting service.
	Update Renting Service		Allows “Manager” after login to update renting service.
	Delete Renting Service		Allows “Manager” after login to delete renting service.
Manage Term	View Term List	Web Staff	Allows “Manager” after login to view term list.
	View Term Detail		Allows “Manager” after login to view term detail.
	Create Term		Allows “Manager” after login to create new term.
	Update Term		Allows “Manager” after login to update term.
	Delete Term		Allows “Manager” after login to delete term.
Manage Component	View Component List	Web Staff	Allows “User” after login to view component list.

	Create Component		Allows “User” after login to create new component.
	Update Component		Allows “User” after login to update component.
	Delete Component		Allows “User” after login to delete component.
Manage Category	View Category List	Web Staff	Allows “Web Staff” after login to view category list.
	Create Category		Allows “Web Staff” after login to create new category.
Manage Task	View Machine Task List	Manager	Allows “Manager” after login to view all machine tasks.
	View Delivery List		Allows “Manager” after login to view all delivery tasks.
	View Machine Task Detail		Allows “Manager” after login to view detail machine task.
	View Delivery Task Detail		Allows “Manager” after login to view detail delivery task.
	Create Machine Task		Allows “Manager” after login to view create machine task.
	Create Delivery Task		Allows “Manager” after login to view create delivery task.
Manage Machine	View Machine List	Web Staff	Allows “Web Staff” after login to view machine list.
	View Machine Detail		Allows “Web Staff” after login to view machine detail.
	Disable Machine		Allows “Web Staff” after login to disable machine.
	Active Machine		Allows “Web Staff” after login to active machine.
	Create New Serial		Allows “Web Staff” after

	Number		login to create new serial number of machine.
	Update Machine		Allows “Web Staff” after login to update machine.
	View Serial Number Detail		Allows “Web Staff” after login to view serial number detail of machine.
	Update Component		Allows “Web Staff” after login to update component’s machine.
	Update Attribute		Allows “Web Staff” after login to update attribute’s machine.
	Create Machine		Allows “Web Staff” after login to create new machine.
Manage Contract	View Contract List	Manager	Allows “Manager” after login to view all contracts in system.
	View Contract Detail		Allows “Manager” after login to view contract detail in system.
	View Ticket History of Contract		Allows “Manager” after login to view tickets history of contract in system.
	Finish Contract		Allows “Manager” after login to terminate contract in system.
Mobile Staff	View Machine Task List	Technical Staff	Allows “Technical Staff” after login to view their machine tasks.
	View Delivery List		Allows “Technical Staff” after login to view their delivery tasks.
	View Machine Task Detail		Allows “Technical Staff” after login to view their machine task detail.
	View Delivery Task Detail		Allows “Technical Staff” after login to view their delivery task detail.

	Receive Delivery Task		Allows “Technical Staff” after login to receive their delivery task.
	Finish Delivery Task		Allows “Technical Staff” after login to finish their delivery task.
	Fail Delivery Task		Allows “Technical Staff” after login to fail their delivery task.
	Finish Machine Task		Allows “Technical Staff” after login to finish their machine task.
	View Ticket List of Machine Task		Allows “Technical Staff” after login to view their machine task with list tickets relate to their task.
	View Ticket Detail of Machine Task		Allows “Technical Staff” after login to view their machine task with ticket detail relate to their task.
	Finish Ticket of Machine Task		Allows “Technical Staff” after login to finish their ticket task.
	Create Ticket of Machine Task		Allows “Technical Staff” after login to create their ticket task.
Website Customer	Get Machinery List	Customer	Allows “Customer” after login to view machine list.
	Get Category List		Allows “Customer” after login to view category list.
	View Machinery Detail		Allows “Customer” after login to view machine detail.
	View Content List		Allows “Customer” after login to view the content list.
	View Content Detail		Allows “Customer” after login to view content details.
	View Current Renting Request Detail		Allows “Customer” after login to view current

		renting request details.
	Add Machine to Current Renting Request	Allows "Customer" after login to add the machine to the current renting request.
	View Address List	Allows "Customer" after login to view the address list.
	Create Address	Allows "Customer" after login to create a new address.
	Update Address	Allows "Customer" after login to update address.
	Delete Address	Allows "Customer" after login to delete the address.
	Create New Renting Request	Allows "Customer" after login to create a new renting request.
	View Renting Request List	Allows "Customer" after login to view the renting request list.
	View Renting Request Detail	Allows "Customer" after login to view renting request details.
	Cancel Renting Request	Allows "Customer" after login to cancel the renting request.
	Download All Contracts From Renting Request	Allows "Customer" after login to download the contract list.
	View Contract List	Allows "Customer" after login to view the contract list.
	View Contract Detail	Allows "Customer" after login to view contract details.
	Download Current Contract	Allows "Customer" after login to download the contract.
	Extend Contract	Allows "Customer" after

		login to extend their currently renting contract
	Cancel Contract	Allows "Customer" after login to cancel their currently renting contract
	View Invoice List	Allows "Customer" after login to view the invoice list.
	View Invoice Detail	Allows "Customer" after login to view invoice details.
	Pay Invoice	Allows "Customer" after login to pay the invoice.
	Cancel Replacement Ticket Invoice	Allows "Customer" after login to cancel replacement ticket invoice
	View Check Machine Request List	Allows "Customer" after login to check machine request list
	Cancel Check Machine Request	Allows "Customer" after login to cancel their new check machine request.
	View Check Machine Request Detail	Allows "Customer" after login to view check machine request detail
	Create Check Machine Request	Allows "Customer" after login to create check machine request
	View Delivery List	Allows "Customer" after login to view delivery list
	View Delivery Detail	Allows "Customer" after login to view delivery detail
	View Profile	Allows "Customer" after login to view profile
	Update Profile	Allows "Customer" after login to update profile
	Update password	Allows "Customer" after login to update password

Table 64 - Scope Testing - In Scope

## 2. Test Strategy

### 2.1 Testing Types

Objective	Technique	Completion criteria
Testing the verification and validation of units of code.	Unit Testing	Method, class, etc.
Testing the entire software system to ensure its functionality.	System Testing	Software requirements, executed test cases, functional requirements, etc.
Testing different components of the system when they are combined together.	Integration testing	Modules
Testing application environment in real situations.	End-to-end testing	Database, third-party payment, etc.

Table 65 - Test Strategy - Testing Types

### 2.2 Test Levels

Type of Tests	Test Level			
	Unit	Integration	System	Acceptance
Unit Testing	X			
System Testing		X	X	
Integration testing		X		
End-to-end testing			X	

Table 66 - Test Strategy - Test Levels

### 2.3 Supporting Tools

Purpose	Tool	Vendor/In-house	Version
API, Unit, Integration, System and end-to-end testing	Postman	Postman	11.16
API	Swagger	Open Source	3.0.1

Table 67 - Test Strategy - Supporting Tools

### 3. Test Plan

#### 3.1 Human Resources

Worker/Doer	Role	Specific Responsibilities/Comments
Nguyễn Minh Nguyên	Leader	<ul style="list-style-type: none"> <li>- Prepare test plans, verifying the test progress.</li> <li>- Verified API test progress.</li> <li>- Do test cases.</li> </ul>
Võ Minh Trí	Member	<ul style="list-style-type: none"> <li>- Do test case</li> </ul>
Lý Ngọc Đăng Khoa		
Bùi Nguyễn Phúc Khang		
Nguyễn Văn Hoàng Minh		

Table 68 - Test Plan - Human Resources

#### 3.2 Test Environment

Purpose	Tool	Provider	Version
Browser Testing	Google Chrome	Google Chrome	130.0.6723.92
Browser Testing	Internet Explorer	Internet Explorer	
Mobile Testing	Physical device		Android

Table 69 - Test Plan - Test Environment

#### 3.3 Test Milestones

Milestone Task	Start Date	End Date
Unit Test		
Get employee account detail	11/11/2024	14/11/2024
Create employee account	11/11/2024	14/11/2024
Change account status	11/11/2024	14/11/2024
Create renting request	11/11/2024	14/11/2024
Cancel renting request	11/11/2024	14/11/2024
End contract	15/11/2024	18/11/2024
Extend contract	15/11/2024	18/11/2024
Login email	15/11/2024	18/11/2024
Create refund invoice	18/11/2024	21/11/2024
Create component replacement ticket	18/11/2024	21/11/2024
Login Username	19/11/2024	22/11/2024
Create machinery	19/11/2024	22/11/2024
Create machine task check machine	19/11/2024	22/11/2024
Create delivery task	19/11/2024	22/11/2024
Create Machine Check Request	19/11/2024	22/11/2024
Cancel Machine Check Request	19/11/2024	22/11/2024
Create Machine Serial Number	19/11/2024	22/11/2024
Get Payment Url	19/11/2024	22/11/2024
Activate Member Email By Otp	19/11/2024	22/11/2024

*Table 70 - Test Plan - Test Milestones*

#### 4. Test Cases & Test Reports

Unit Test Cases	Test Report
<a href="#"><u>Unit Test</u></a>	<a href="#"><u>Test Report</u></a>

*Table 71 - Test Cases and Test Report*

## VI. Release Package & User Guides

### 1. Deliverable Package

No.	Deliverable Item	Description
1	Project Schedule/Tracking	<ul style="list-style-type: none"> <li>● Google Sheets</li> <li>● Google Docs</li> <li>● Google Drive</li> </ul>
2	Source Codes	Back End: <a href="#">BE</a> Front End Management: <a href="#">FE Management</a> Front End Client: <a href="#">FE Client</a> Mobile Customer: <a href="#">Mobile Customer</a> Mobile Technical Staff: <a href="#">Mobile Staff</a>
3	Database Script(s)	Scripts for creating and managing the database schema and initial data.
4	Final Report Document	A document that summarises the project information.
5	Test Cases Document	Detailed documentation of test scenarios and results.
6	Slide	Presentation summarizing project highlights and deliverables.

Table 72 - Deliverable package

### 2. Installation Guides

#### 2.1 System Requirements

##### 2.1.1 Hardware

- Web application

PC	Minimum	Recommended
Internet connection	Cable, Wi-fi (4Mbps)	Cable, Wi-fi (8Mbps)
Processor	Intel Core i3 1.4GHz	Intel Core i7 2.5GHz
Memory	2GB Ram	4GB Ram up
Storage	2GB	4GB up
Web Browser	Chromes (v69 or higher)	Chrome's latest stable version

Table 73 - System requirement web application

- Mobile application

Operating System	Android 9
Processor	Minimum MediaTek P35 / SnapDragon 450
Storage	Minimum 8GB
RAM	Minimum of 1GB, 2GB is recommended

Table 74 - System requirement mobile application

##### 2.1.2 Software

	Name/Version	Description
Operating System	Windows 10 or higher	OS for PC
Browser	Latest version	Browser for web application
.NET SDK	.NET 8 SDK	.NET Standard Development Kit
.NET IDE	Visual Studio 2022	IDE for building and deploying API project
Visual Studio Code	Latest version	Code editor for Front-end and Mobile application

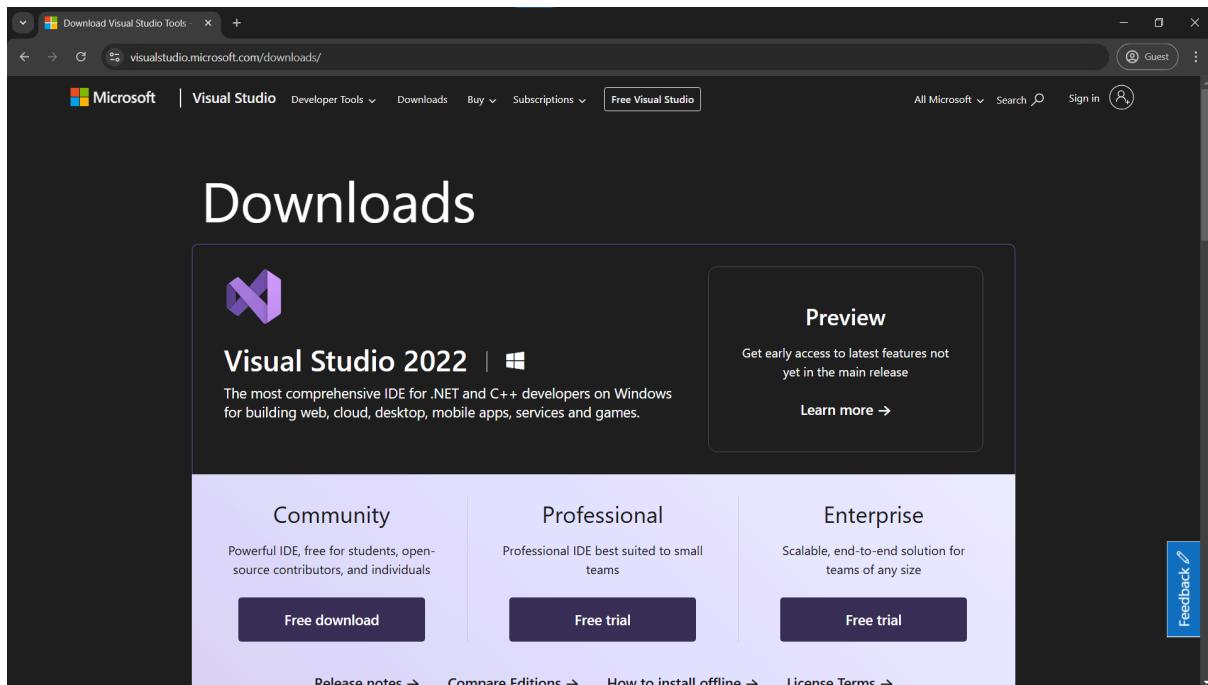
	Name/Version	Description
NodeJS	v18.19.1	Runtime environment for Front-end and Mobile
Expo Go	Latest version on CH play	To run the simulator for the Mobile

*Table 75 - System requirement software*

## 2.2 Installation Instruction

### 2.2.1 Setup Back-end

1. Download and run the latest version of Visual Studio Community edition from <https://visualstudio.microsoft.com/fr/downloads/>

*Figure 275: Download Visual Studio Community edition*

2. Download source code from [https://github.com/phuckhangbui/Capstone\\_Project\\_BE](https://github.com/phuckhangbui/Capstone_Project_BE)
3. Extract and open MMRMS.sln in Visual Studio

Name	Date modified	Type	Size
.git	11/12/2024 8:35 PM	File folder	
.github	9/10/2024 3:04 PM	File folder	
.idea	10/25/2024 4:21 PM	File folder	
.vs	9/30/2024 3:05 PM	File folder	
API	11/6/2024 10:51 AM	File folder	
APITests	11/10/2024 7:47 PM	File folder	
BackgroundJob	10/18/2024 5:13 PM	File folder	
BusinessObject	11/7/2024 8:45 PM	File folder	
Common	11/12/2024 3:10 PM	File folder	
coverage-report	9/30/2024 11:27 AM	File folder	
DAO	11/12/2024 7:10 PM	File folder	
DTOs	11/3/2024 10:19 AM	File folder	
Repository	10/26/2024 10:50 AM	File folder	
Service	11/10/2024 9:24 PM	File folder	
.dockerignore	9/10/2024 3:04 PM	DOCKERIGNORE F...	1 KB
.gitattributes	9/10/2024 3:04 PM	Text Document	3 KB
.gitignore	9/10/2024 3:04 PM	Git Ignore Source ...	7 KB
docker-compose.override.yml	9/10/2024 3:04 PM	Yaml Source File	1 KB
docker-compose.yml	10/1/2024 8:34 PM	Yaml Source File	1 KB
Dockerfile	9/10/2024 3:04 PM	File	2 KB
MMRMS.sln	11/3/2024 10:19 AM	Visual Studio Solut...	5 KB

Figure 276: Open MMRMS.sln

#### 4. Run project

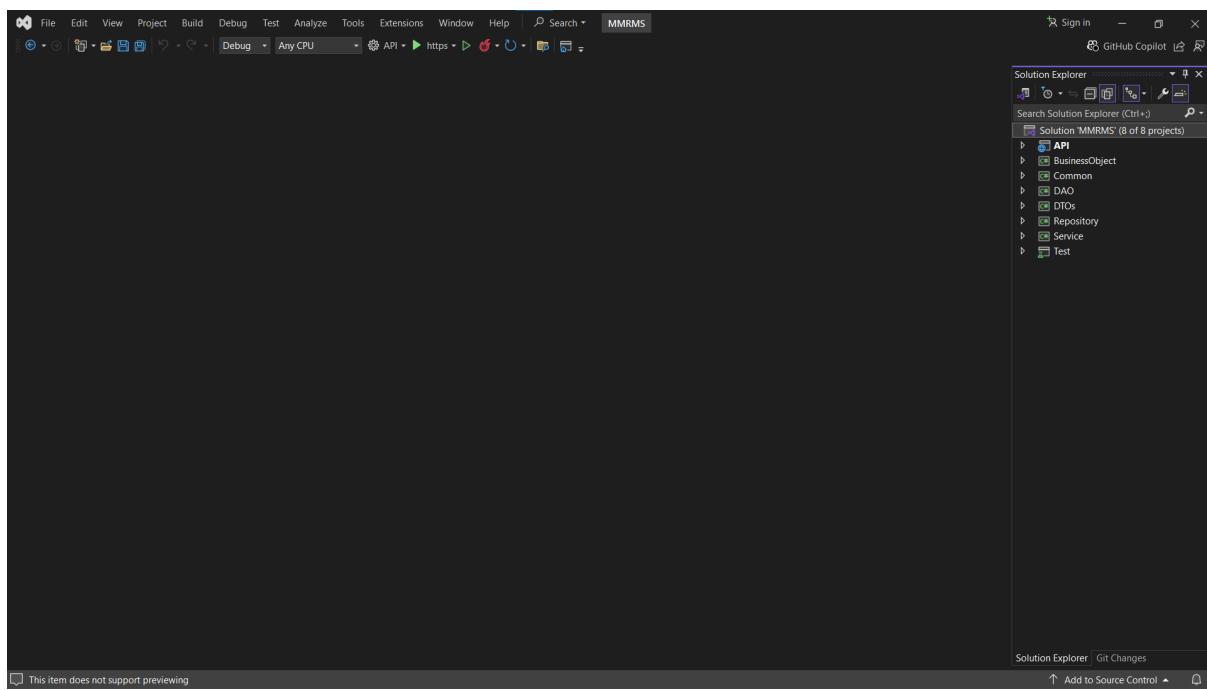


Figure 277: Run Project

#### 5. Test project in browser by access <https://localhost:5000/swagger/index.html>

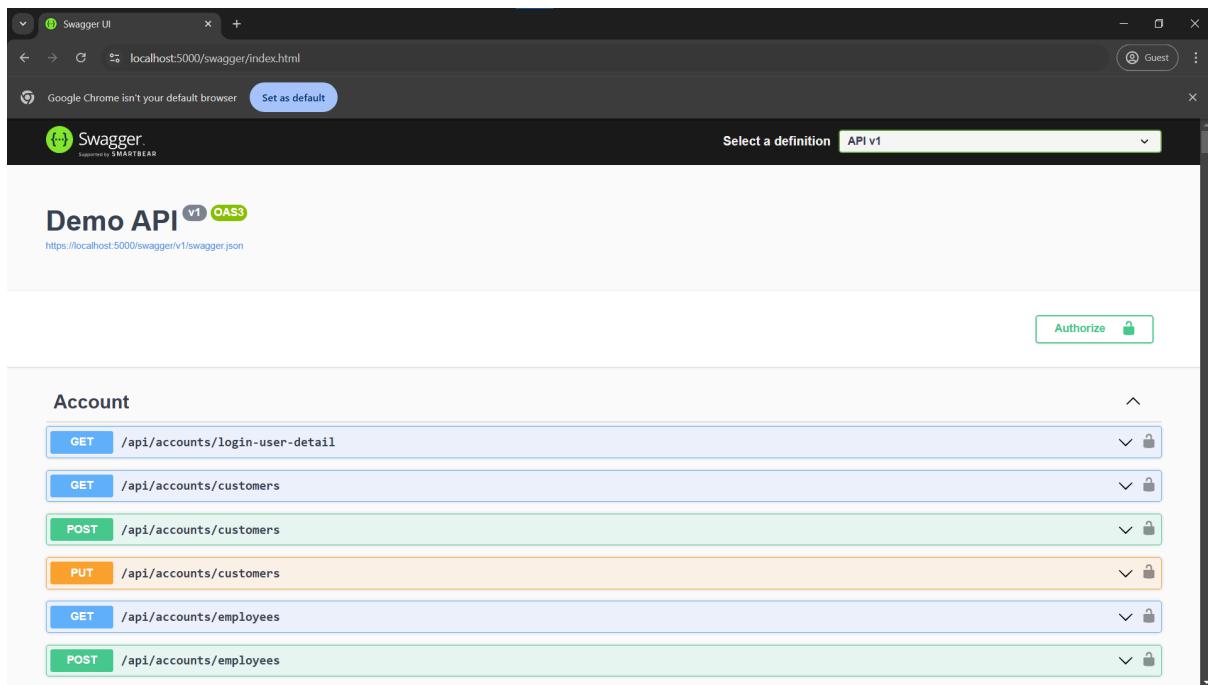


Figure 278: API Swagger

## 2.2.2 Setup Front-end

### 2.2.2.1 Setup Management Front-end

Step 1: Download & Install Visual Studio Code from

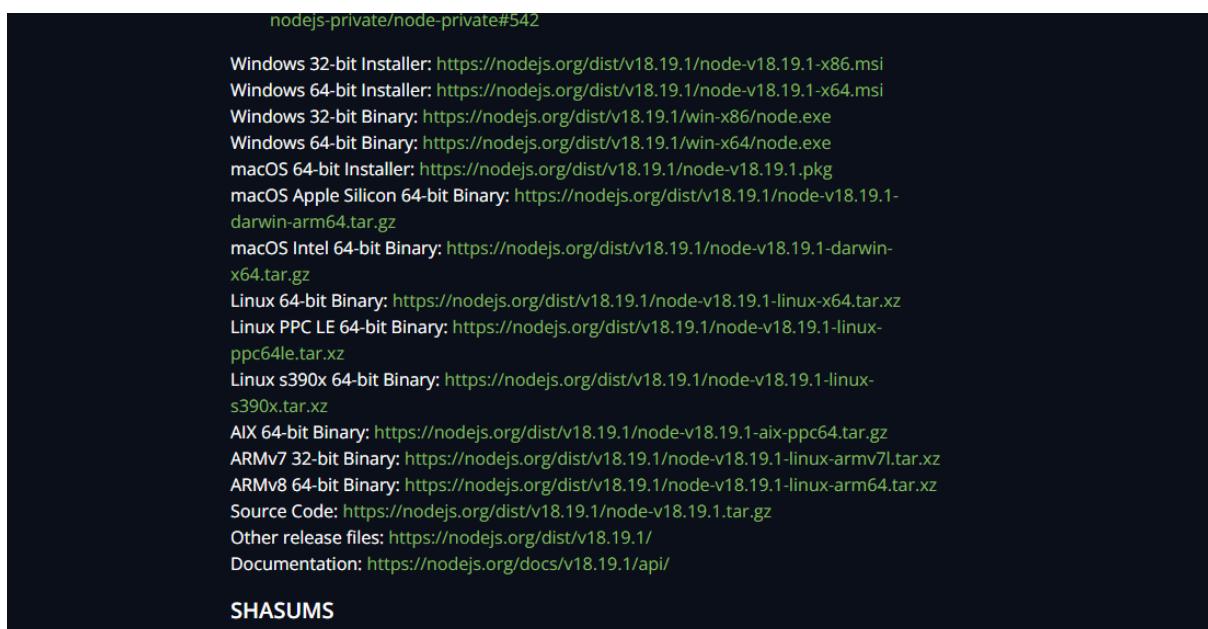
<https://code.visualstudio.com/download>



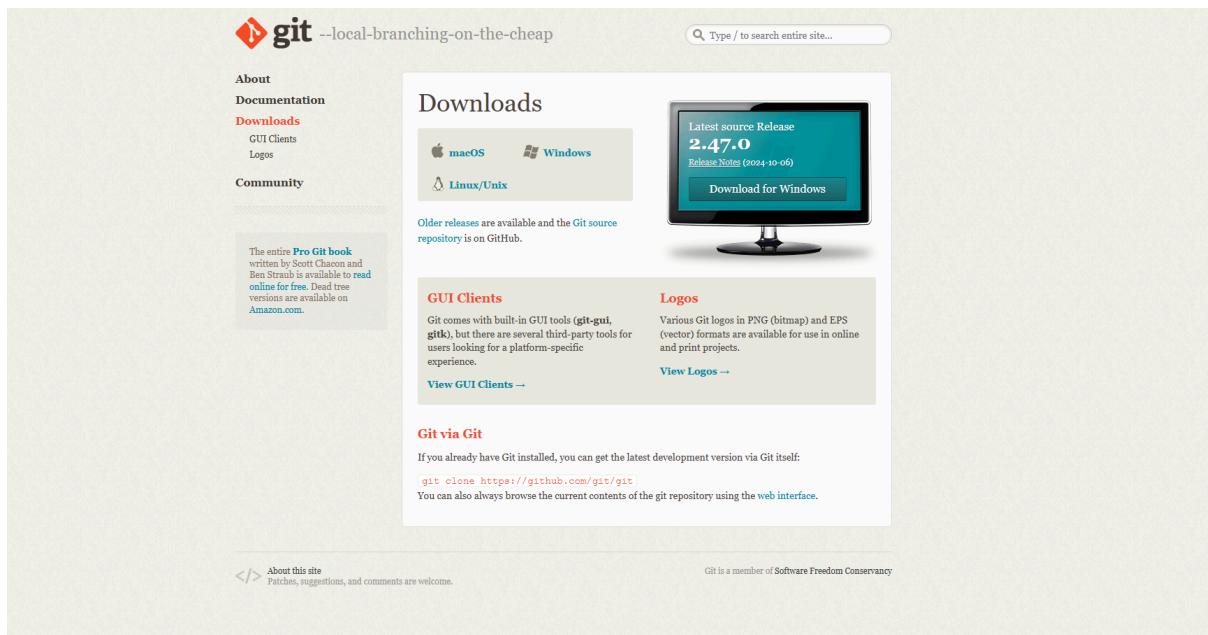
Figure 279: Download VS code studio

Step 2: Download & Install NodeJS LTS from

<https://nodejs.org/en/blog/release/v18.19.1>

*Figure 280: Download Nodejs version*

Step 3: Download and install git <https://git-scm.com/downloads>

*Figure 281: Download git*

Step 4: Navigate to the folder you want to install the project in, open CMD by right-clicking > “Open in Terminal” and type the commands below to get the source code

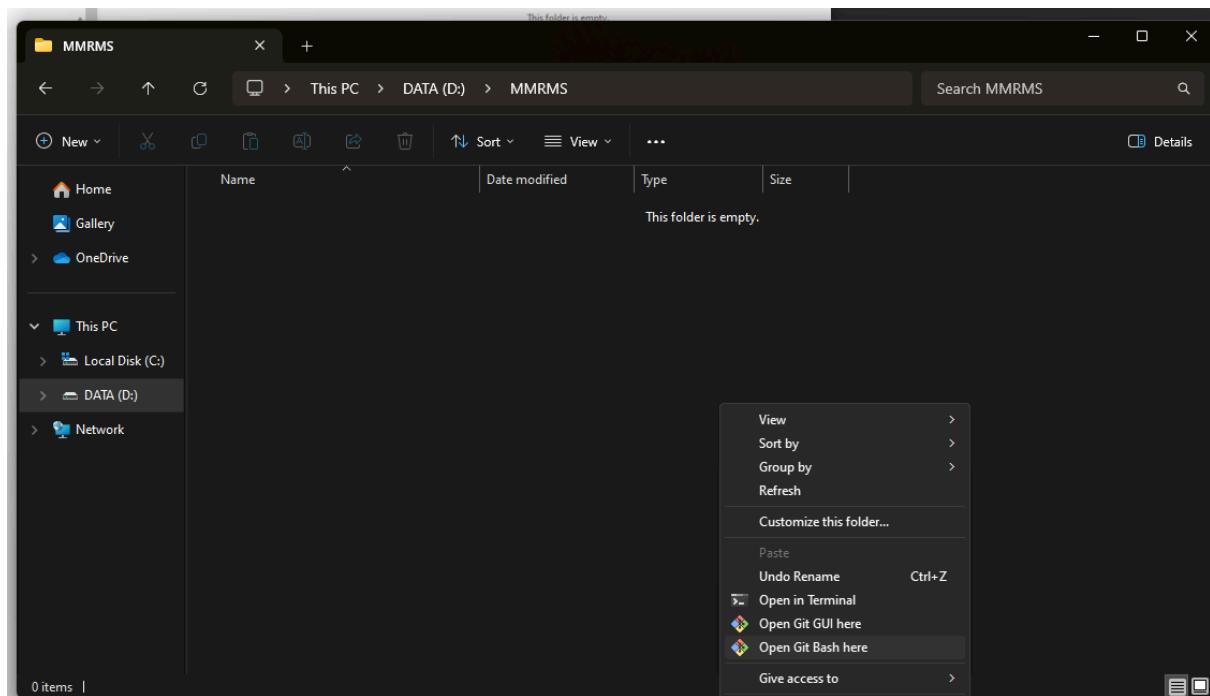


Figure 282: Open terminals for git commands

- Use the command:

git clone [https://github.com/Nguyennm080503/Capstone\\_Project\\_FE\\_Management](https://github.com/Nguyennm080503/Capstone_Project_FE_Management)

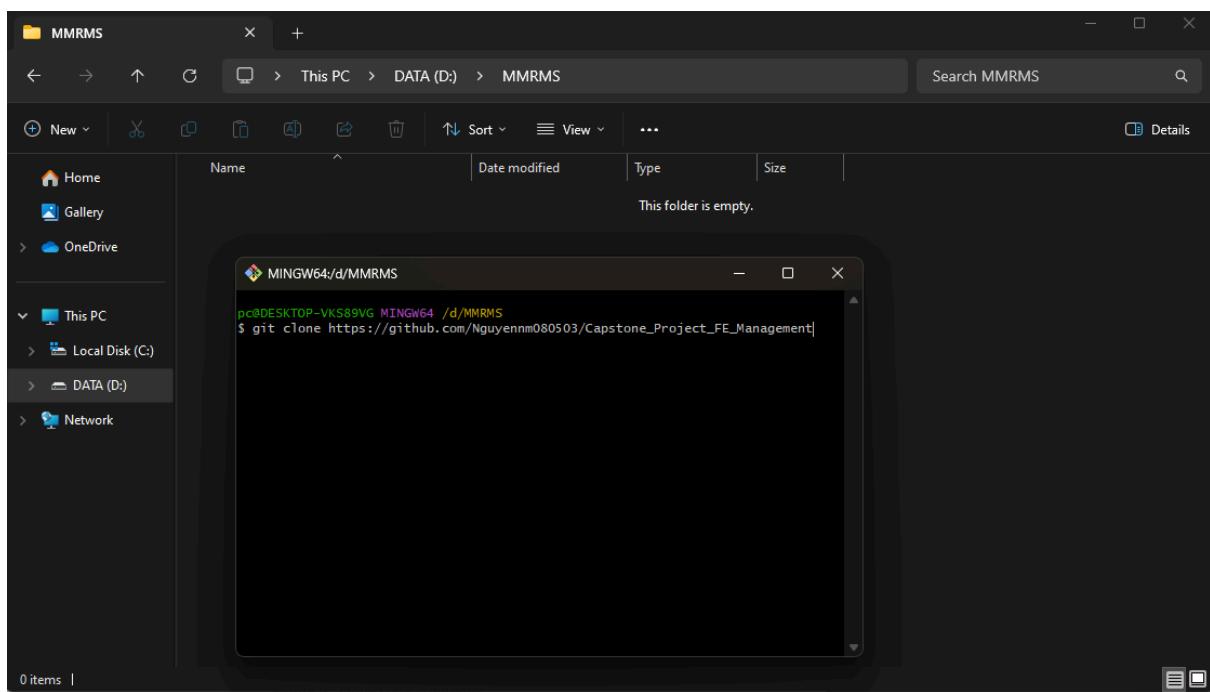
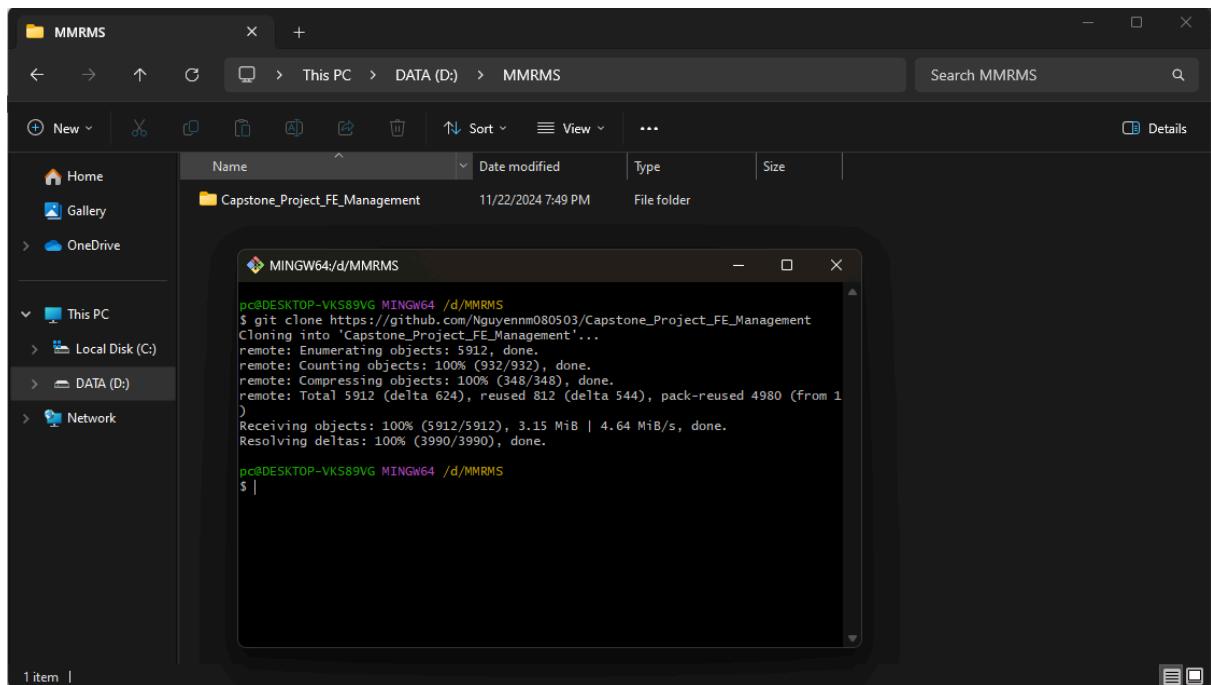


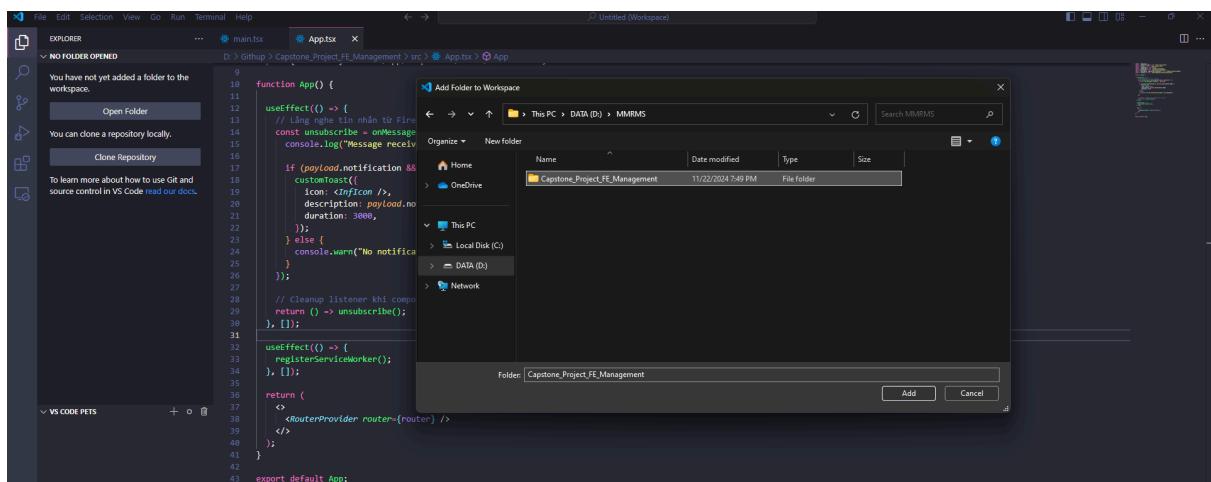
Figure 283: Clone code Management Front-end

- Waiting it for finish to will see a folder name MMRMS:



*Figure 284: Finish clone code Management Front-end*

Step 5: Open Visual Studio Code and prepare step by step like the image follow



*Figure 285: Open folder project*

Step 6: Click combine button “ctrl + ~” to open terminal in Visual Studio Code and type “npm install” and click “Enter”

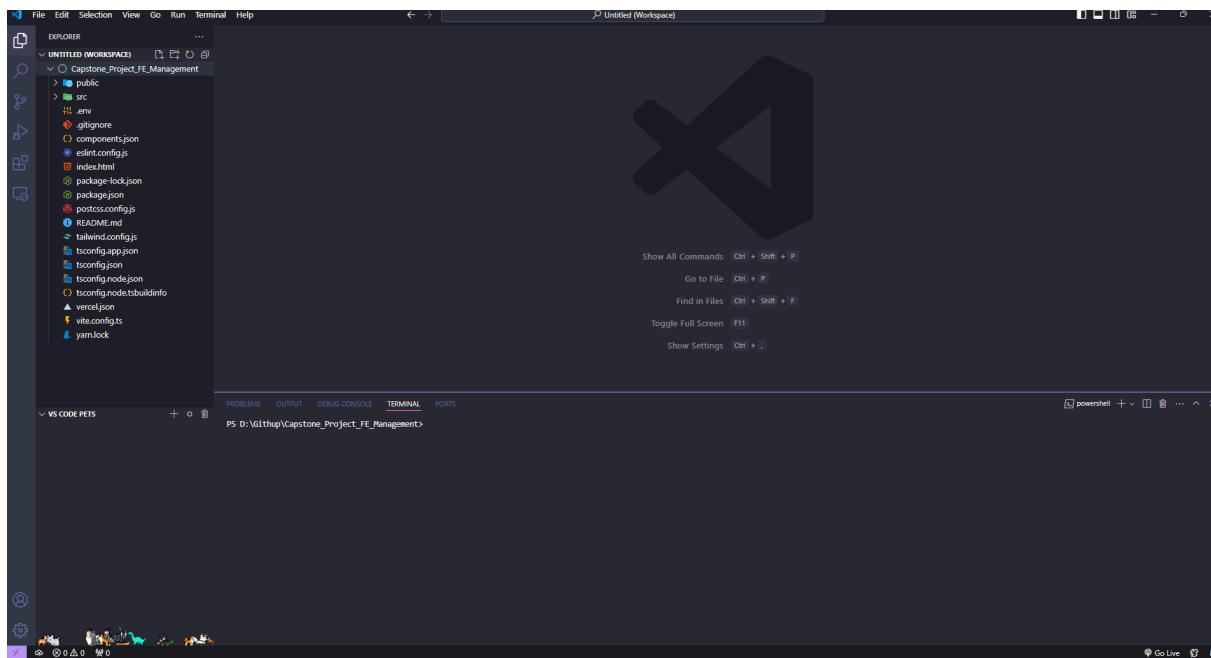


Figure 286: Install source

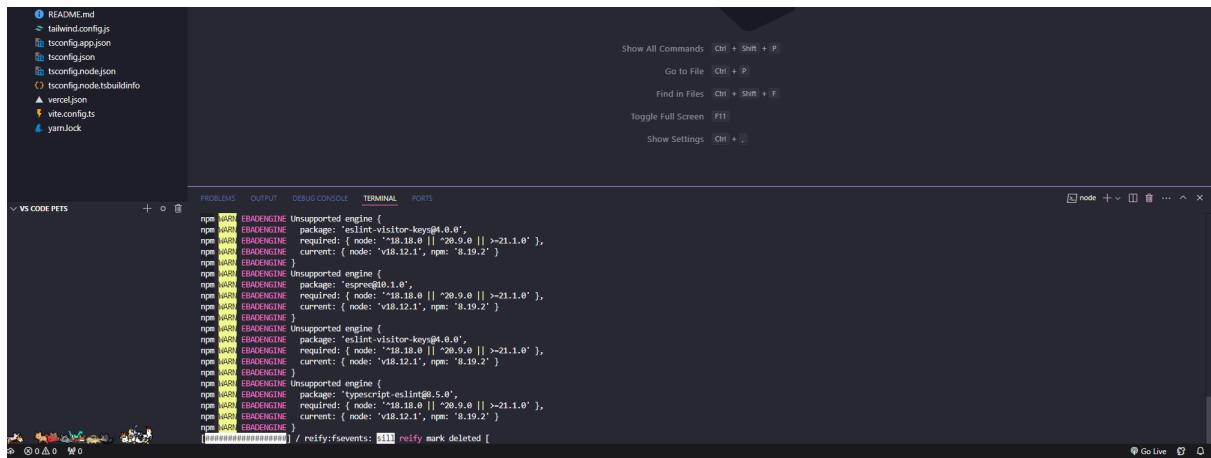


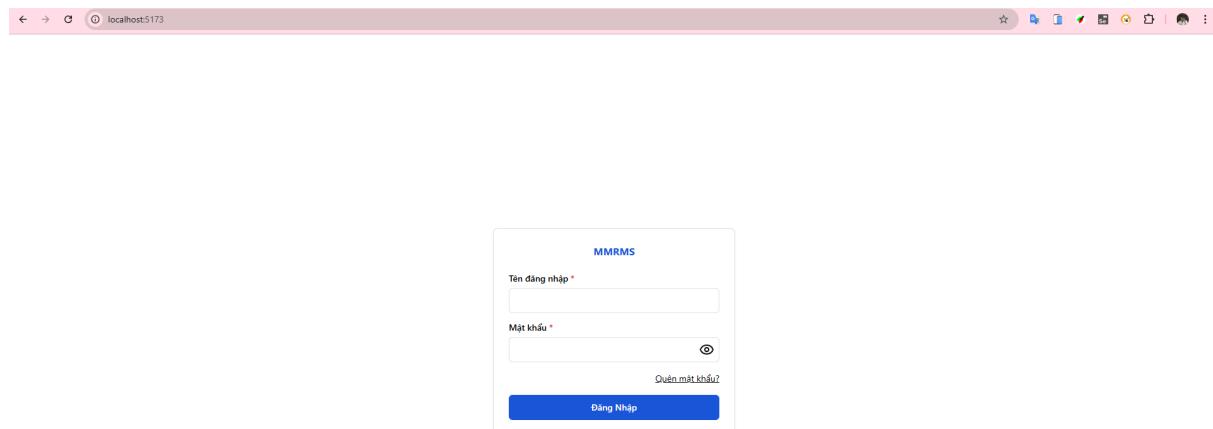
Figure 287: Install source

Step 7: When it finish run command "npm run dev" it will start at "http://localhost:5173"



Figure 288: Run source finish

- Project start:



*Figure 289: Web has been started*

#### 2.2.2.2 Setup Client Front-end

Step 1: Download & Install Visual Studio Code from

<https://code.visualstudio.com/download>



*Figure 290: Download VS code studio*

Step 2: Download & Install NodeJS LTS from

<https://nodejs.org/en/blog/release/v18.19.1>

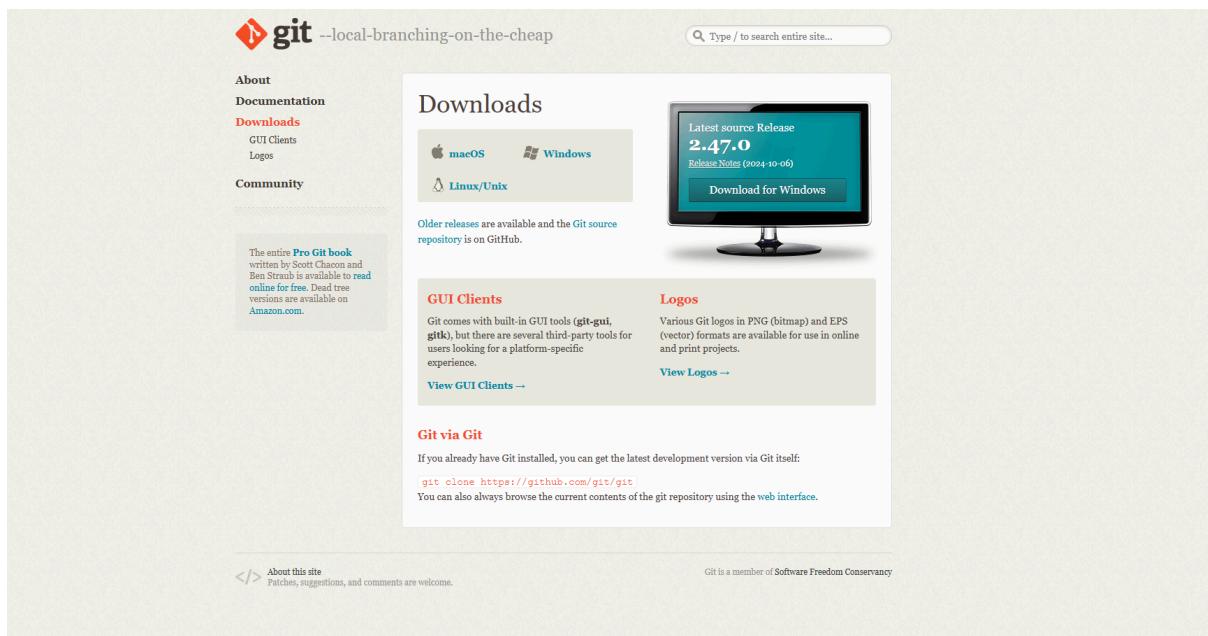
[nodejs-private/node-private#542](#)

Windows 32-bit Installer: <https://nodejs.org/dist/v18.19.1/node-v18.19.1-x86.msi>  
 Windows 64-bit Installer: <https://nodejs.org/dist/v18.19.1/node-v18.19.1-x64.msi>  
 Windows 32-bit Binary: <https://nodejs.org/dist/v18.19.1/win-x86/node.exe>  
 Windows 64-bit Binary: <https://nodejs.org/dist/v18.19.1/win-x64/node.exe>  
 macOS 64-bit Installer: <https://nodejs.org/dist/v18.19.1/node-v18.19.1.pkg>  
 macOS Apple Silicon 64-bit Binary: <https://nodejs.org/dist/v18.19.1/node-v18.19.1-darwin-arm64.tar.gz>  
 macOS Intel 64-bit Binary: <https://nodejs.org/dist/v18.19.1/node-v18.19.1-darwin-x64.tar.gz>  
 Linux 64-bit Binary: <https://nodejs.org/dist/v18.19.1/node-v18.19.1-linux-x64.tar.xz>  
 Linux PPC LE 64-bit Binary: <https://nodejs.org/dist/v18.19.1/node-v18.19.1-linux-ppc64le.tar.xz>  
 Linux s390x 64-bit Binary: <https://nodejs.org/dist/v18.19.1/node-v18.19.1-linux-s390x.tar.xz>  
 AIX 64-bit Binary: <https://nodejs.org/dist/v18.19.1/node-v18.19.1-aix-ppc64.tar.gz>  
 ARMv7 32-bit Binary: <https://nodejs.org/dist/v18.19.1/node-v18.19.1-linux-armv7l.tar.xz>  
 ARMv8 64-bit Binary: <https://nodejs.org/dist/v18.19.1/node-v18.19.1-linux-arm64.tar.xz>  
 Source Code: <https://nodejs.org/dist/v18.19.1/node-v18.19.1.tar.gz>  
 Other release files: <https://nodejs.org/dist/v18.19.1/>  
 Documentation: <https://nodejs.org/docs/v18.19.1/api/>

**SHASUMS**

*Figure 291: Download Nodejs version*

Step 3: Download and install git <https://git-scm.com/downloads>



The screenshot shows the official Git website at [git-scm.com](https://git-scm.com). The main navigation bar includes links for About, Documentation, Downloads, and Community. The Downloads section is highlighted, featuring links for macOS, Windows, and Linux/Unix. A prominent feature is the "Latest source Release" section, which displays "2.47.0" and a "Release Notes" link from 2024-10-06, with a "Download for Windows" button. Below this, there's information about older releases and a GitHub link. The "GUI Clients" section links to "View GUI Clients →", and the "Logos" section links to "View Logos →". At the bottom, there's a "Git via Git" section with instructions and a command-line example: `git clone https://github.com/git/git`. The footer includes links for "About this site" and "Patches, suggestions, and comments are welcome.", and a note that Git is a member of the Software Freedom Conservancy.

*Figure 292: Download git*

Step 4: Navigate to the folder you want to install the project in, open CMD by right-clicking > “Open in Terminal” and type the commands below to get the source code

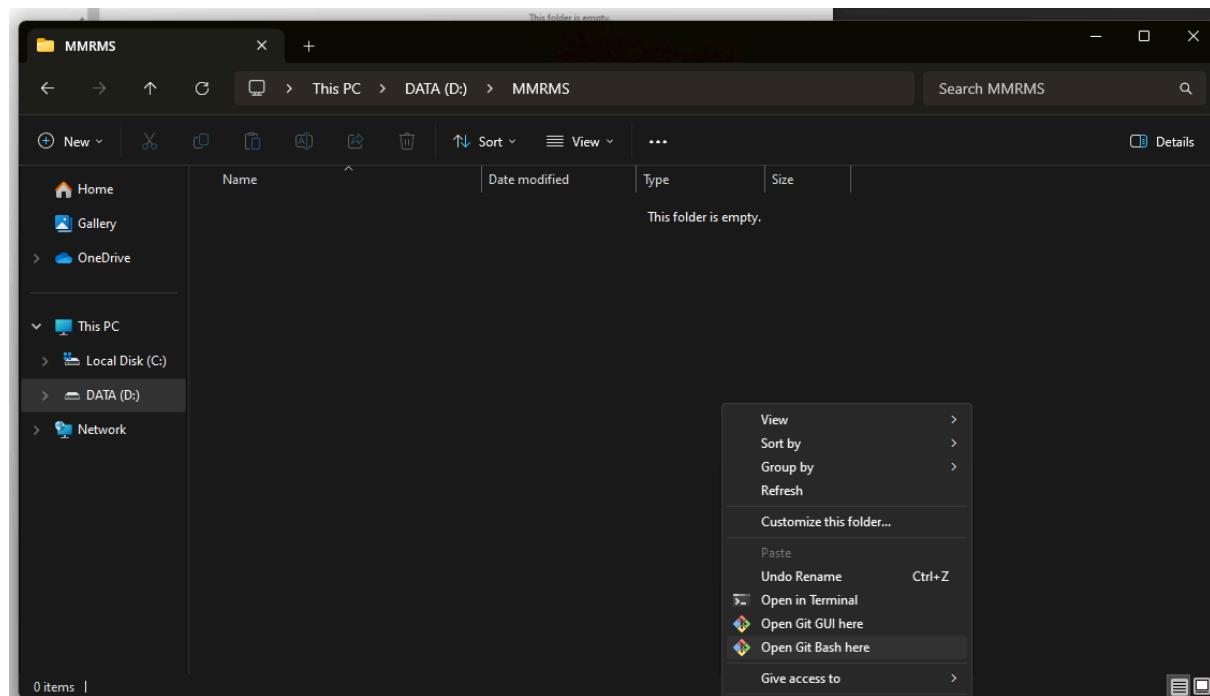


Figure 293: Open terminals for git commands

- Use the command:

```
git clone https://github.com/Nguyennm080503/Capstone\_Project\_FE\_Client
```

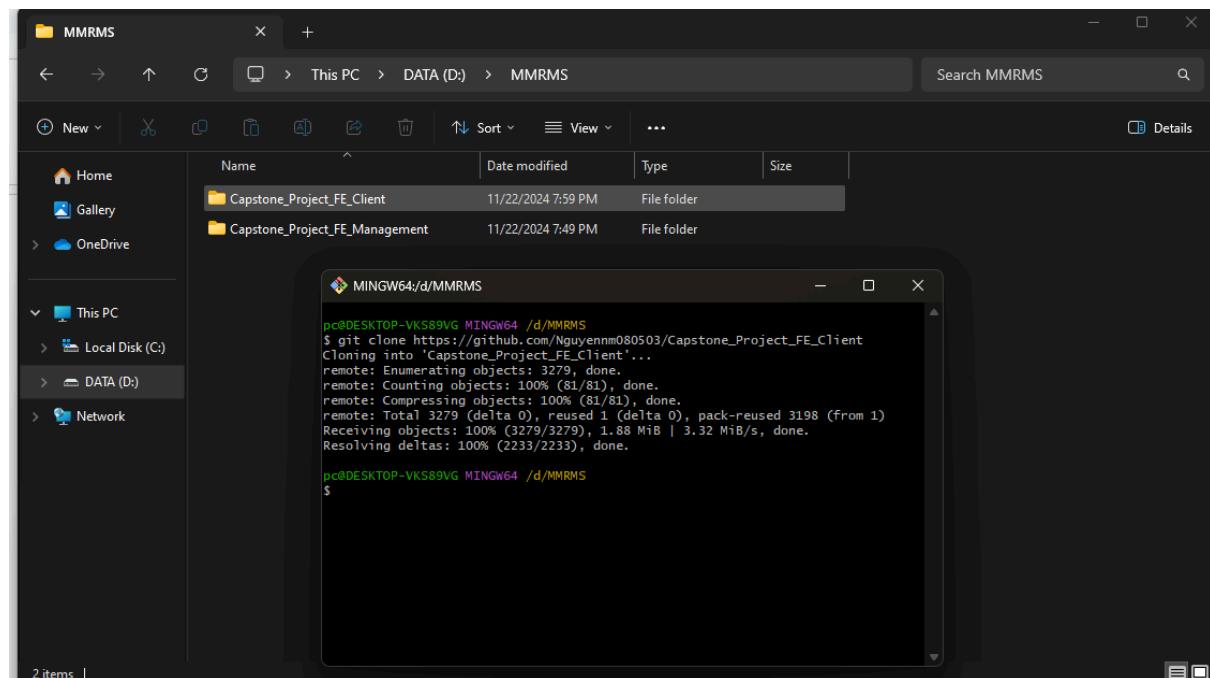


Figure 294: Finish clone code client Front-end

Step 5: Open Visual Studio Code and prepare step by step like the image follow.

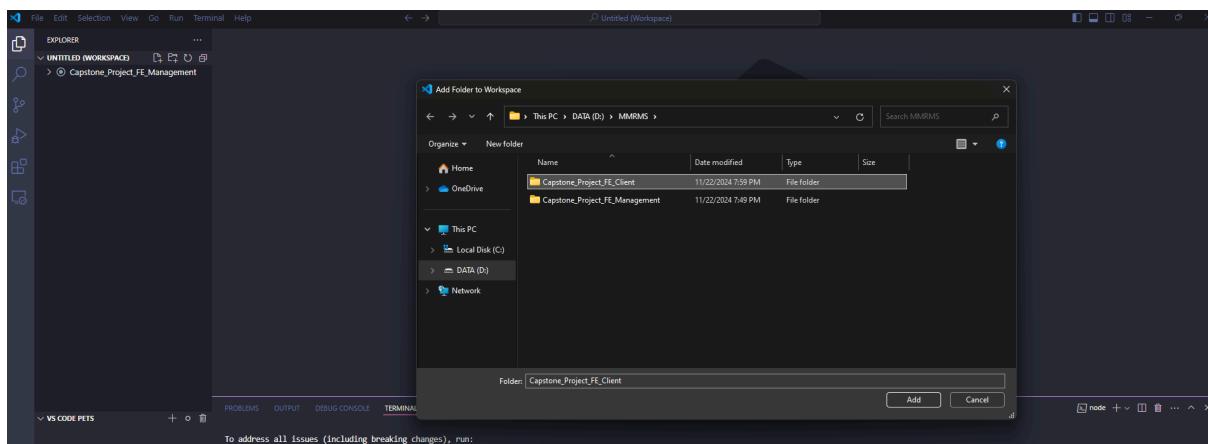


Figure 295: Open folder project

Step 6: Click combine button “ctrl + ~” to open terminal in Visual Studio Code and type “npm i” and click “Enter”.

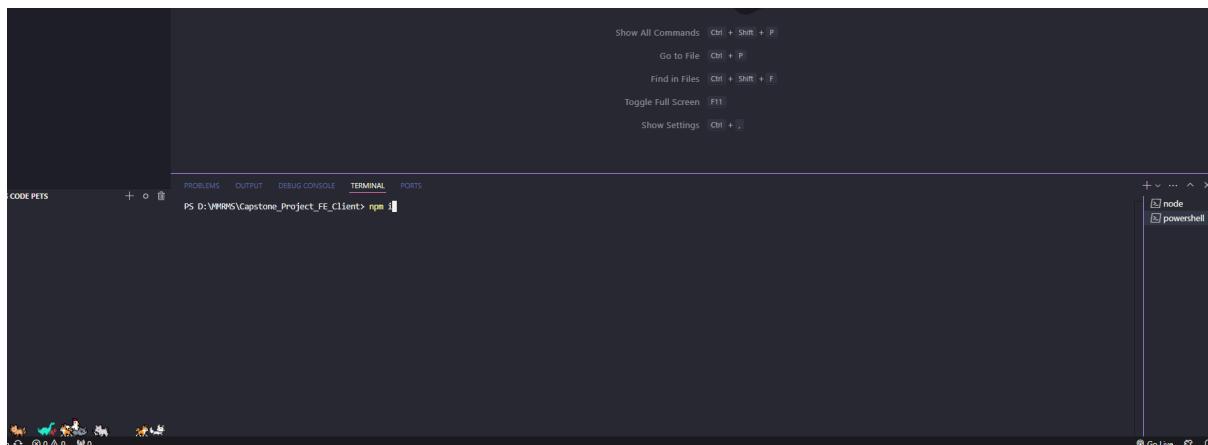


Figure 296: Install source



Figure 297: Install source

Step 7: When it finish run command “npm run dev” it will start at <http://localhost:5174>.



Figure 298: Run source finish

- Project start:

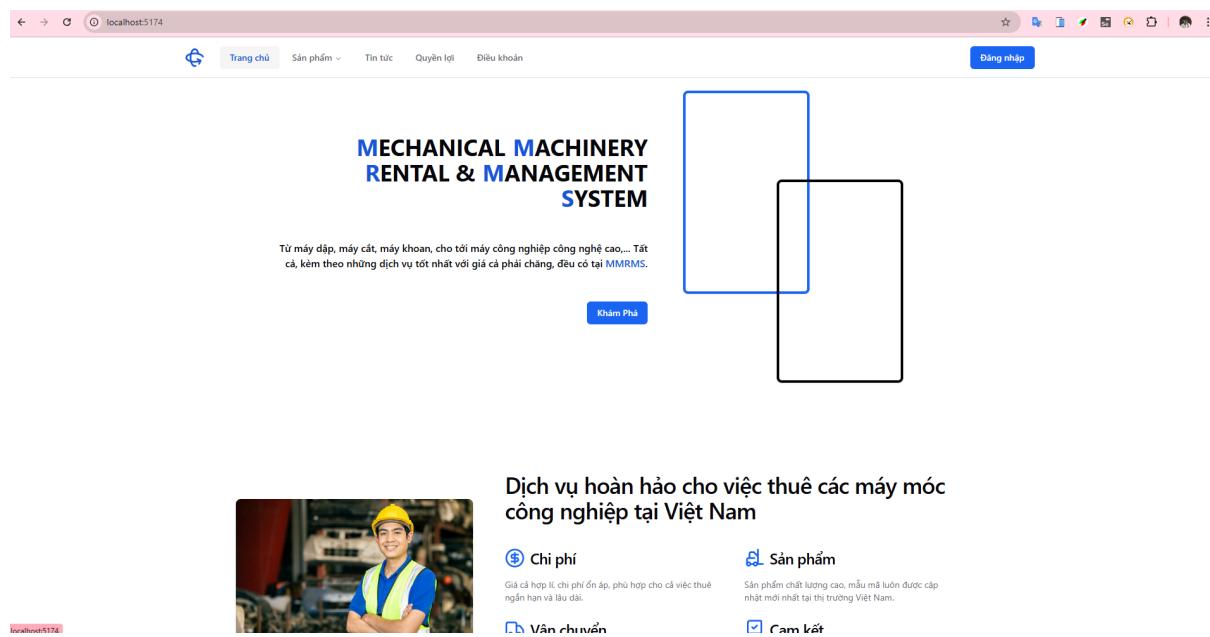


Figure 299: Web has been started

## 2.2.3 Setup Mobile

### 2.2.3.1 Staff Mobile

Step 1: Download & Install Visual Studio Code from

<https://code.visualstudio.com/download>

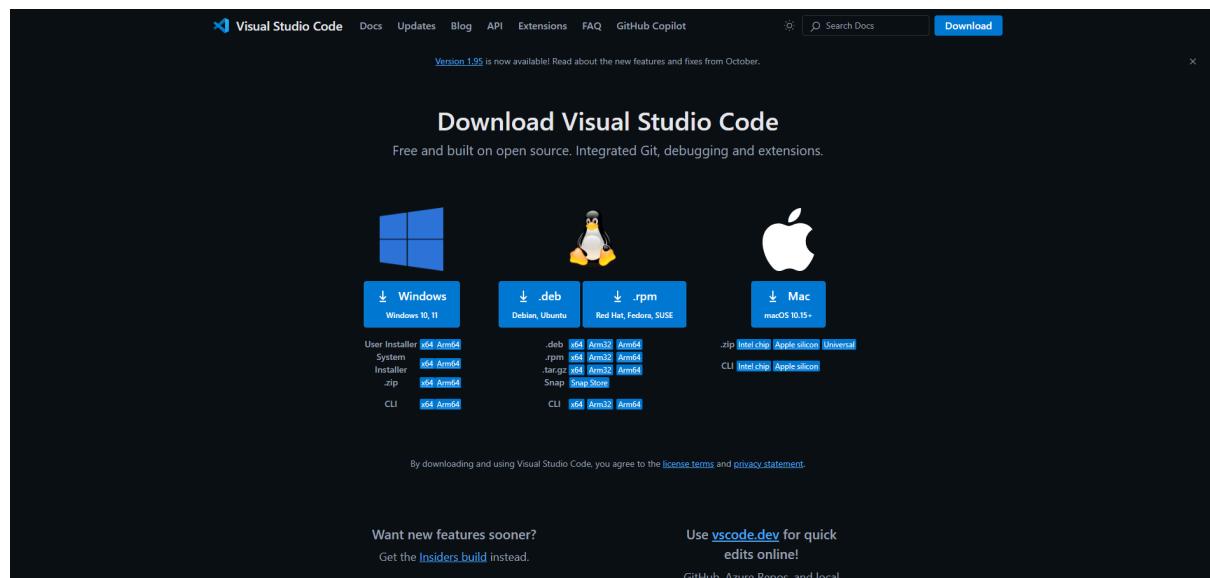


Figure 300: Download VS code studio

Step 2: Download & Install NodeJS LTS from

<https://nodejs.org/en/blog/release/v18.19.1>

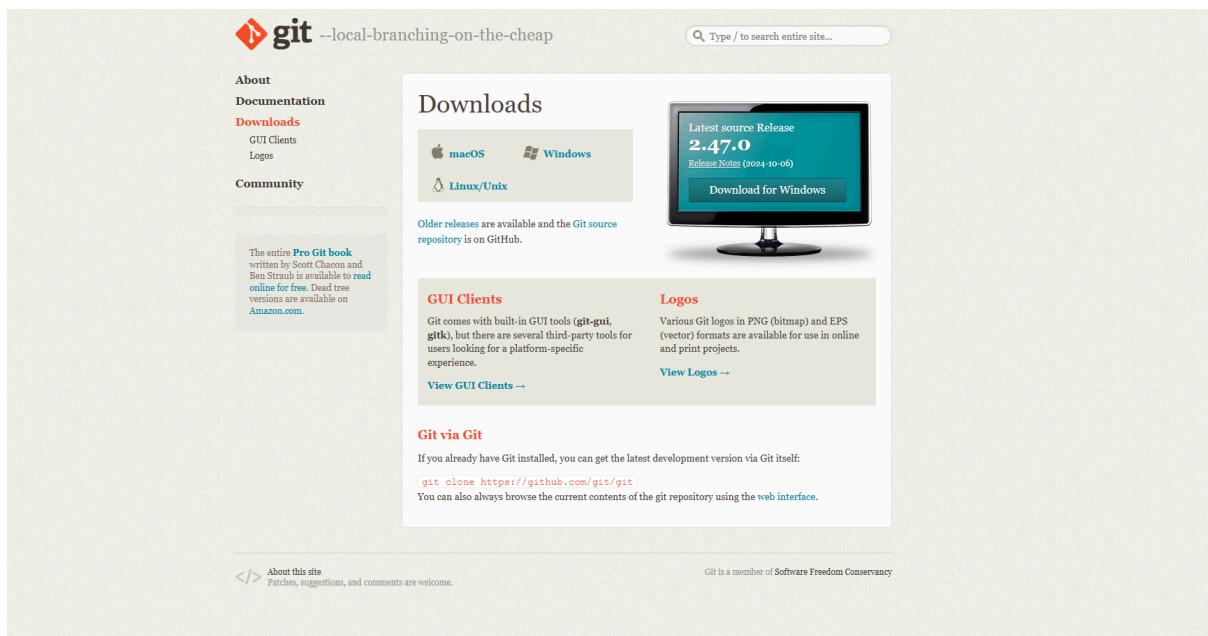
[nodejs-private/node-private#542](#)

Windows 32-bit Installer: <https://nodejs.org/dist/v18.19.1/node-v18.19.1-x86.msi>  
 Windows 64-bit Installer: <https://nodejs.org/dist/v18.19.1/node-v18.19.1-x64.msi>  
 Windows 32-bit Binary: <https://nodejs.org/dist/v18.19.1/win-x86/node.exe>  
 Windows 64-bit Binary: <https://nodejs.org/dist/v18.19.1/win-x64/node.exe>  
 macOS 64-bit Installer: <https://nodejs.org/dist/v18.19.1/node-v18.19.1.pkg>  
 macOS Apple Silicon 64-bit Binary: <https://nodejs.org/dist/v18.19.1/node-v18.19.1-darwin-arm64.tar.gz>  
 macOS Intel 64-bit Binary: <https://nodejs.org/dist/v18.19.1/node-v18.19.1-darwin-x64.tar.gz>  
 Linux 64-bit Binary: <https://nodejs.org/dist/v18.19.1/node-v18.19.1-linux-x64.tar.xz>  
 Linux PPC LE 64-bit Binary: <https://nodejs.org/dist/v18.19.1/node-v18.19.1-linux-ppc64le.tar.xz>  
 Linux s390x 64-bit Binary: <https://nodejs.org/dist/v18.19.1/node-v18.19.1-linux-s390x.tar.xz>  
 AIX 64-bit Binary: <https://nodejs.org/dist/v18.19.1/node-v18.19.1-aix-ppc64.tar.gz>  
 ARMv7 32-bit Binary: <https://nodejs.org/dist/v18.19.1/node-v18.19.1-linux-armv7l.tar.xz>  
 ARMv8 64-bit Binary: <https://nodejs.org/dist/v18.19.1/node-v18.19.1-linux-arm64.tar.xz>  
 Source Code: <https://nodejs.org/dist/v18.19.1/node-v18.19.1.tar.gz>  
 Other release files: <https://nodejs.org/dist/v18.19.1/>  
 Documentation: <https://nodejs.org/docs/v18.19.1/api/>

**SHASUMS**

*Figure 301: Download Nodejs version*

Step 3: Download and install git <https://git-scm.com/downloads>



The screenshot shows the official Git website at [git-scm.com](https://git-scm.com). The main navigation bar includes links for About, Documentation, Downloads, and Community. The Downloads section is highlighted, featuring links for macOS, Windows, and Linux/Unix. It also displays the latest source release (2.47.0) with a 'Download for Windows' button. Below this, sections for GUI Clients and Logos are shown, along with instructions for cloning the repository via Git or the web interface.

*Figure 302: Download git*

Step 4: Navigate to the folder you want to install the project in, open CMD by right-clicking > “Open in Terminal” and type the commands below to get the source code.

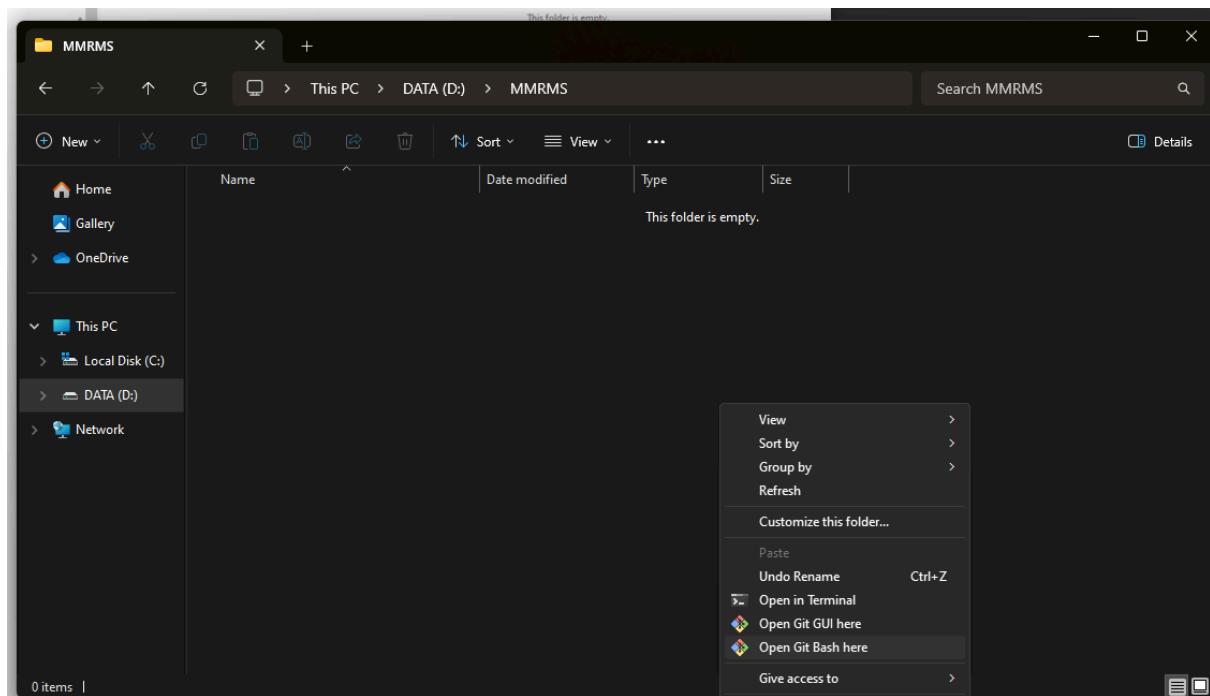


Figure 303: Open terminals for git commands

- Use the command:

```
git clone https://github.com/AlexVo18/Capstone\_Mobile\_Staff
```

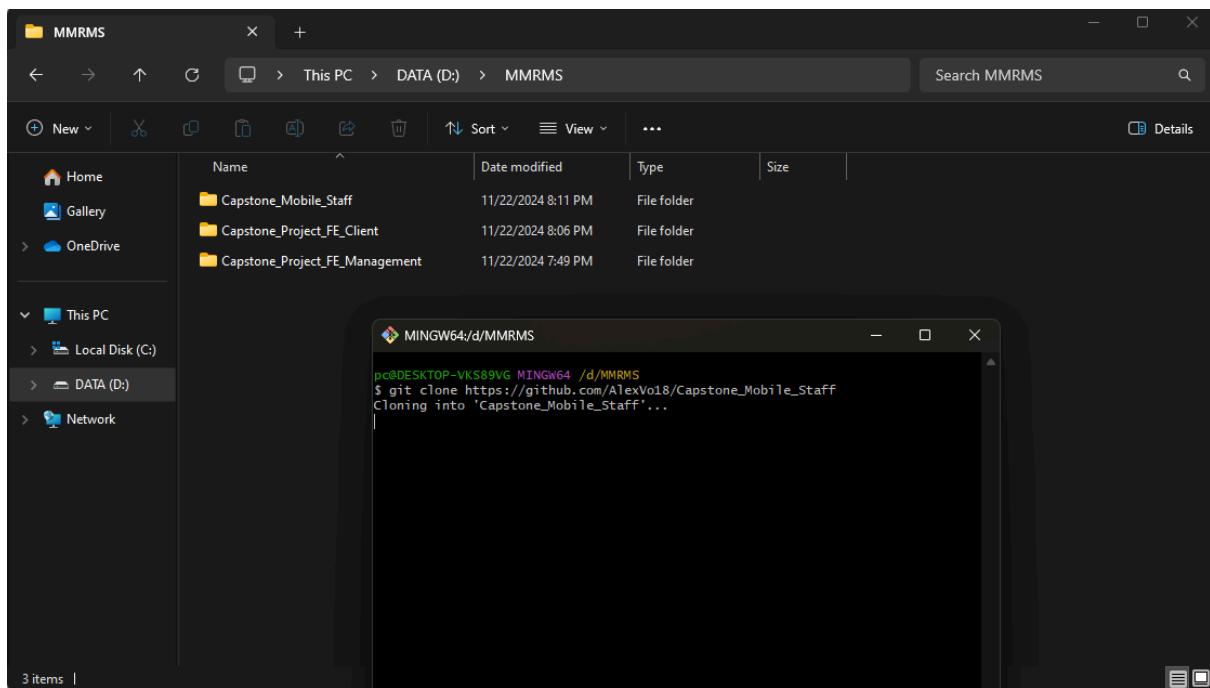
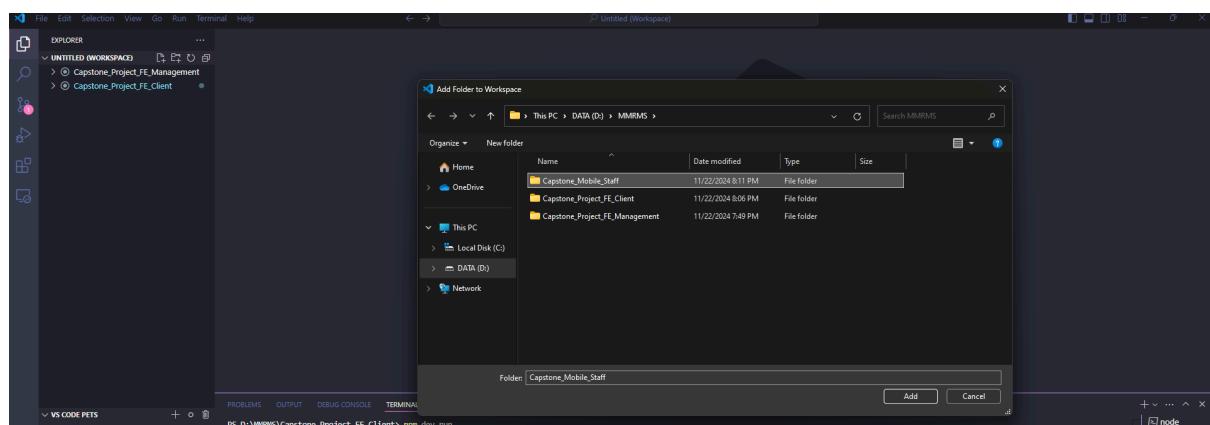


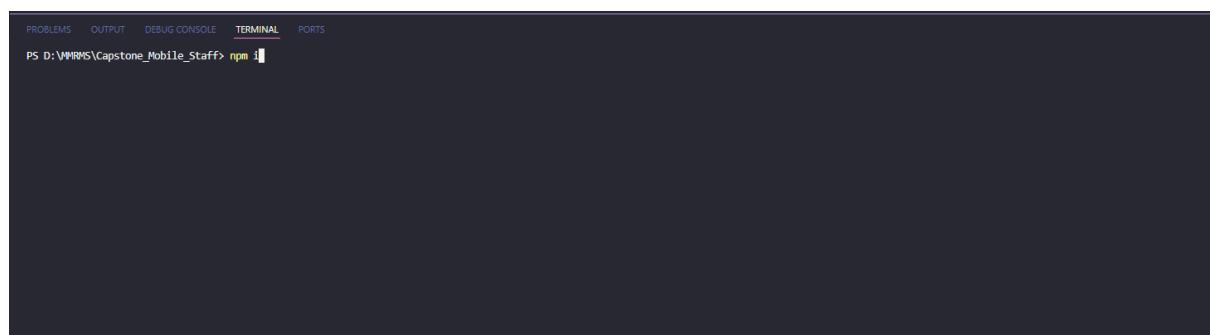
Figure 304: Finish clone code staff mobile

Step 5: Open Visual Studio Code and prepare step by step like the image follow.

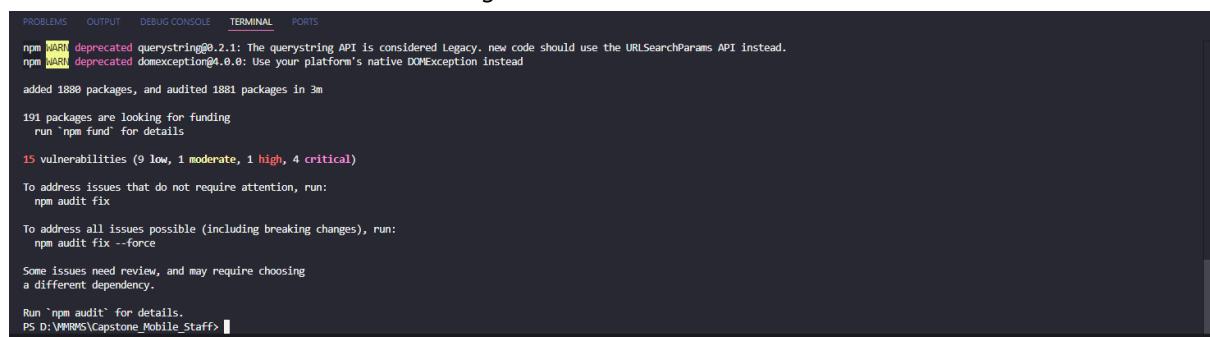


*Figure 305: Open folder project*

Step 6: Click combine button “ctrl + ~” to open terminal in Visual Studio Code and type “npm i” and click “Enter”.



*Figure 306: Install source*



*Figure 307: Install source*

Step 7: When it finish run command “npx expo run” it will run.



*Figure 308: Source run*

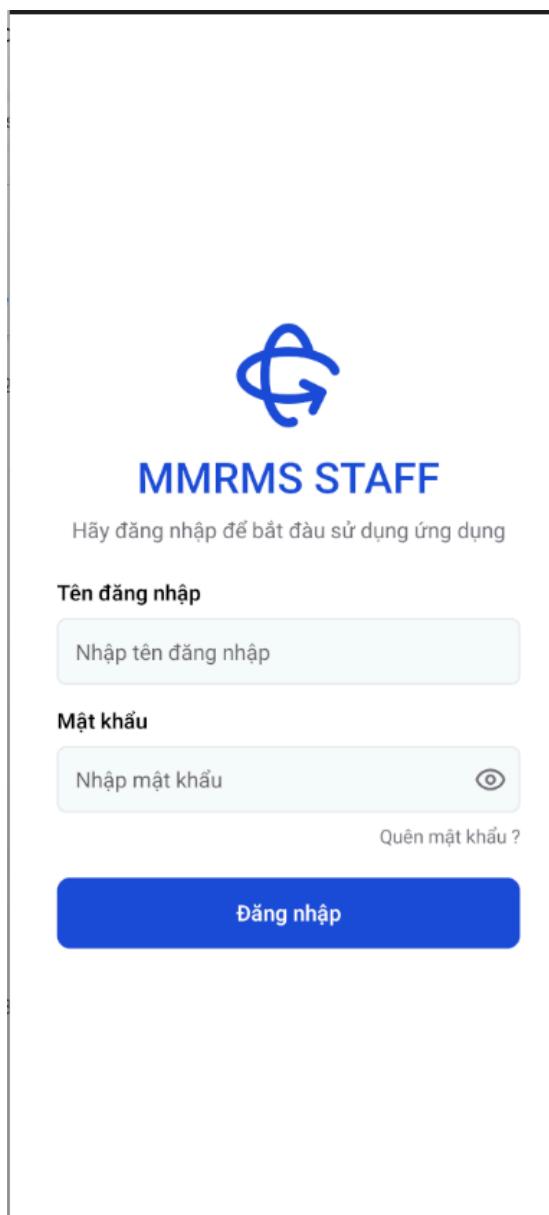
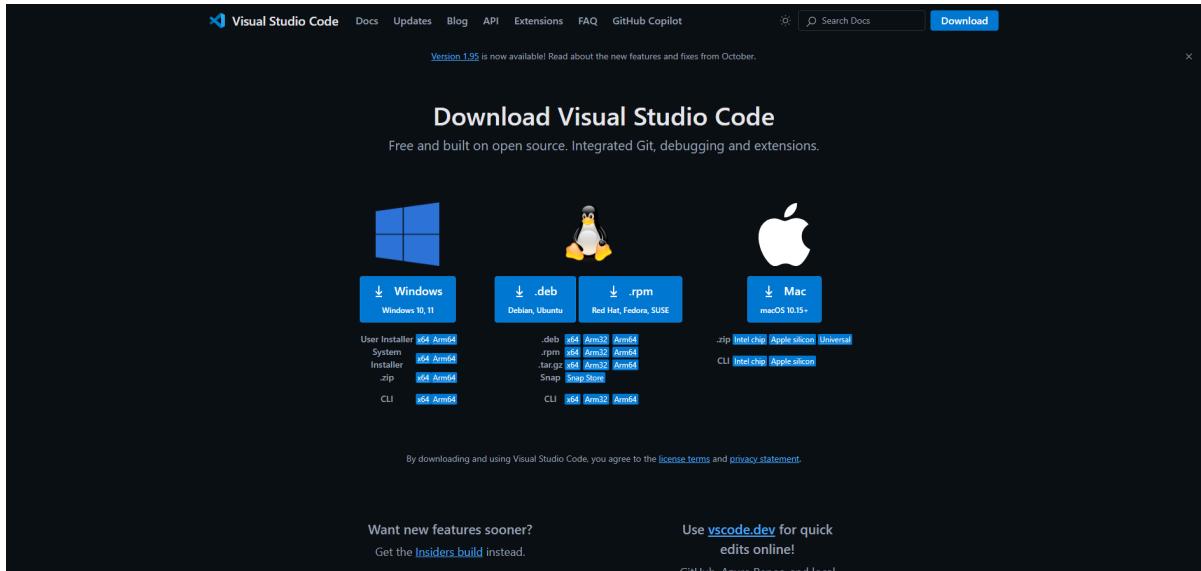


Figure 309: Screen when finish run

#### 2.2.3.2 Customer Mobile

Step 1: Download & Install Visual Studio Code from

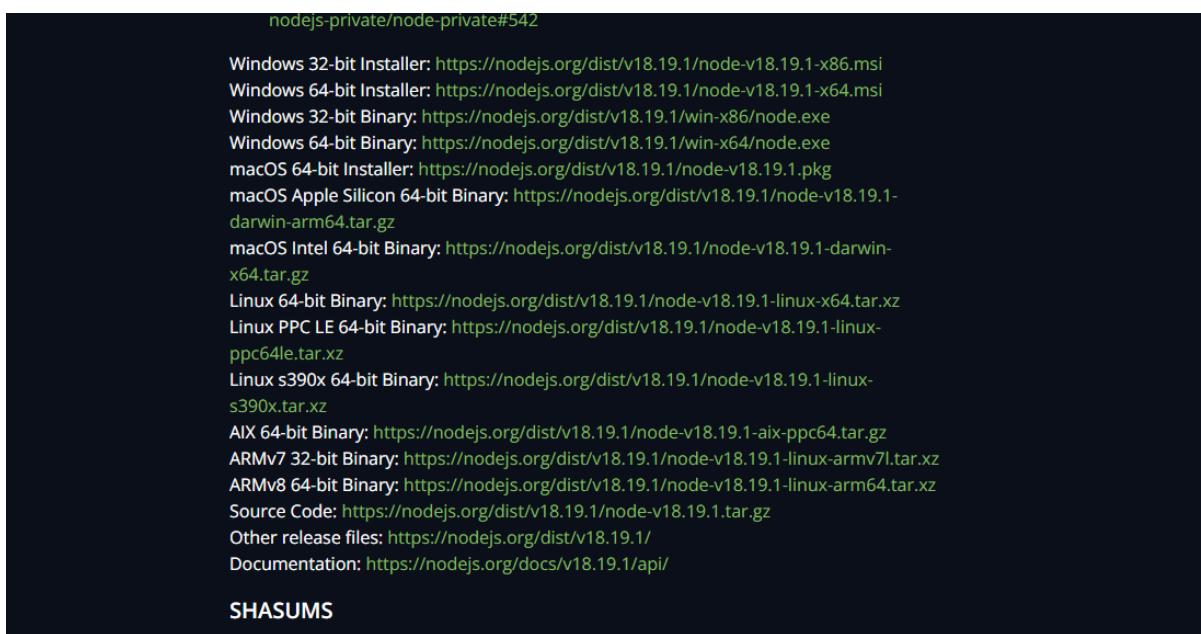
<https://code.visualstudio.com/download>



*Figure 310: Download VS code studio*

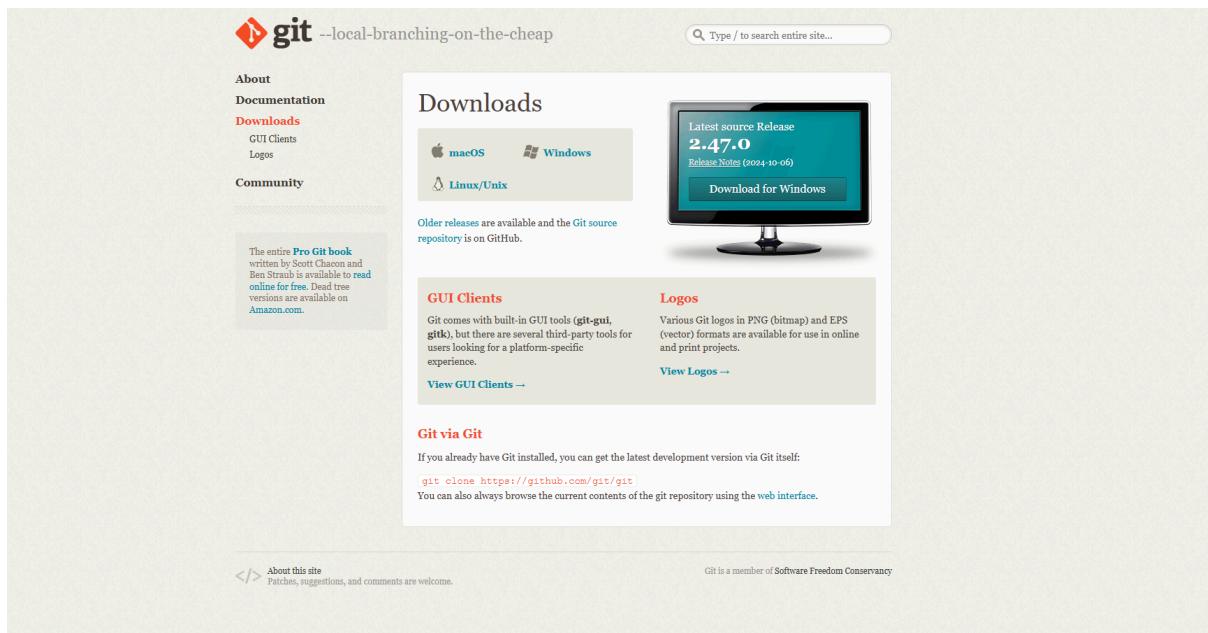
Step 2: Download & Install NodeJS LTS from

<https://nodejs.org/en/blog/release/v18.19.1>

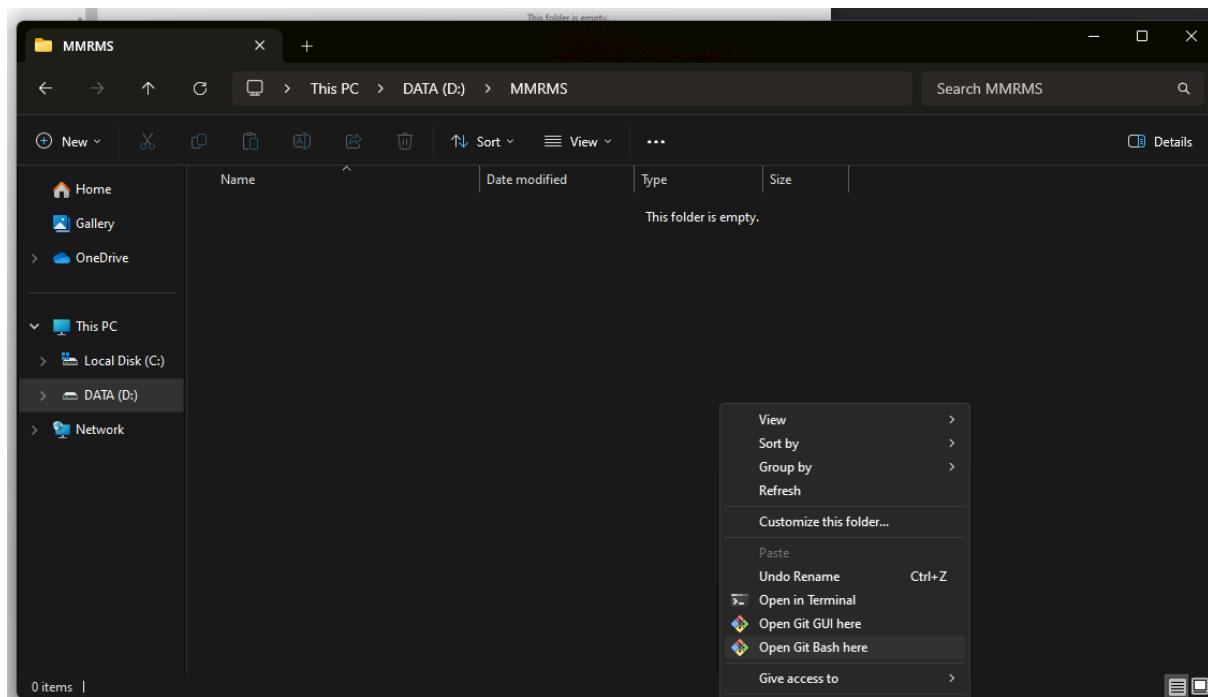


*Figure 311: Download Nodejs version*

Step 3: Download and install git <https://git-scm.com/downloads>

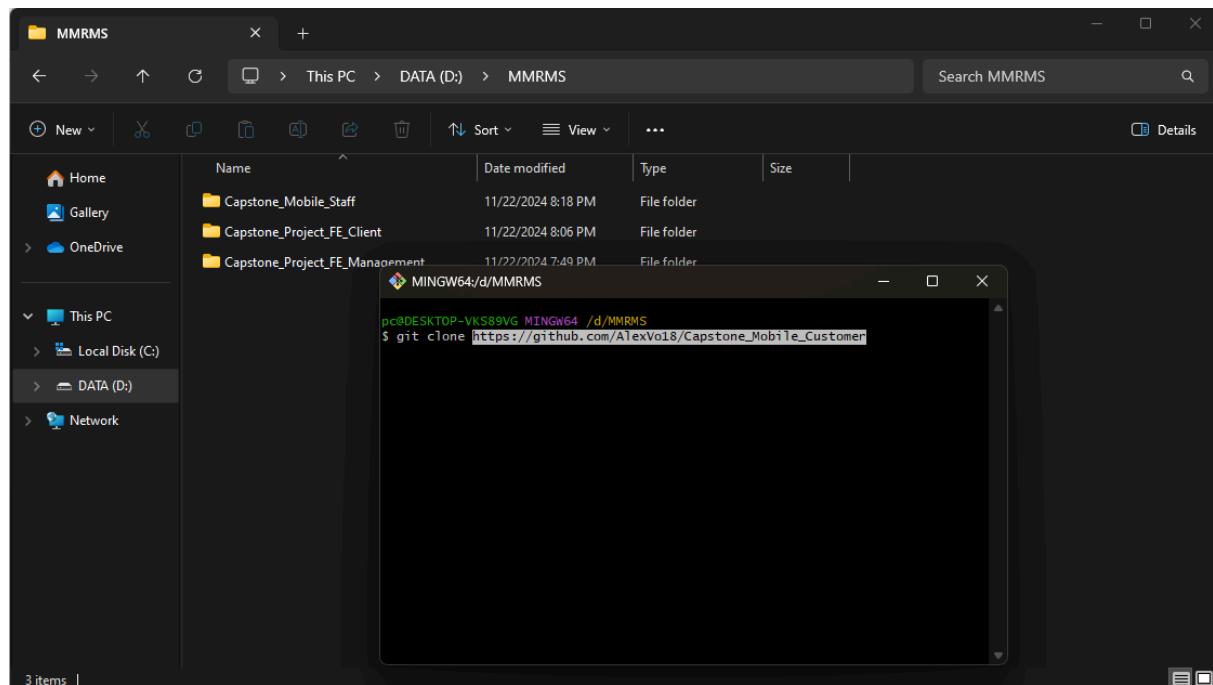
*Figure 312: Download git*

Step 4: Navigate to the folder you want to install the project in, open CMD by right-clicking > “Open in Terminal” and type the commands below to get the source code.

*Figure 313: Open terminals for git commands*

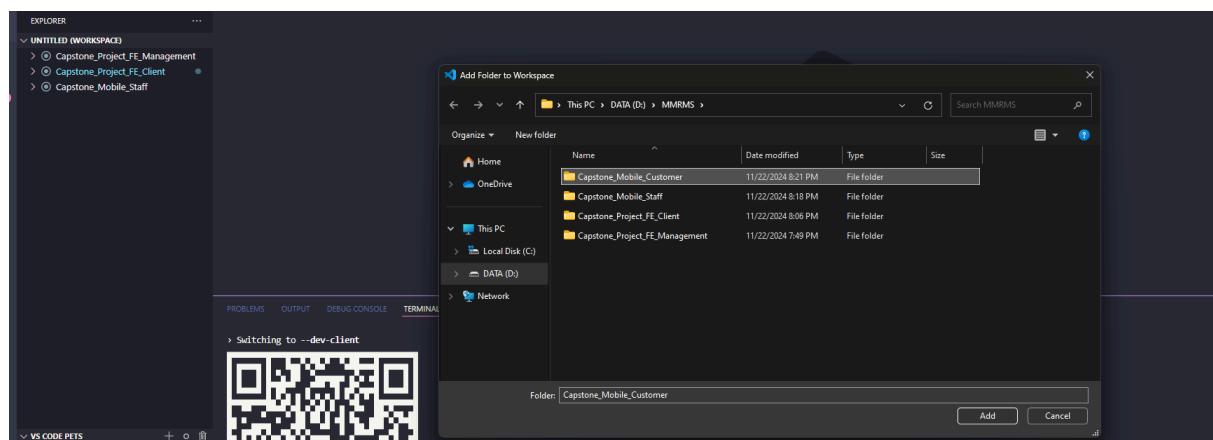
- Use the command:

git clone [https://github.com/AlexVo18/Capstone\\_Mobile\\_Staff](https://github.com/AlexVo18/Capstone_Mobile_Staff)



*Figure 314: Finish clone code customer mobile*

Step 5: Open Visual Studio Code and prepare step by step like the image follow.



*Figure 315: Open folder project*

Step 6: Click combine button “ctrl + ~” to open terminal in Visual Studio Code and type “npm i” and click “Enter”.

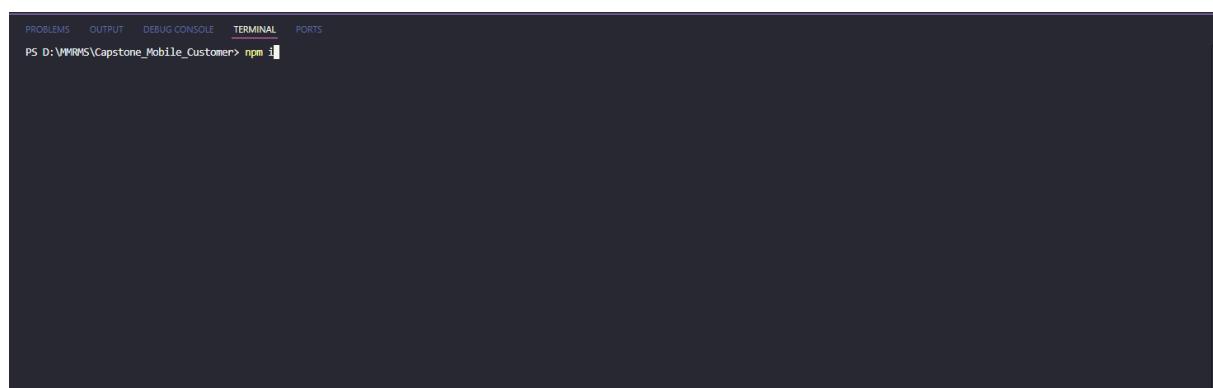


Figure 316: Install source

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
npm WARN deprecated glob@7.2.3: Glob versions prior to v9 are no longer supported
npm WARN deprecated glob@7.2.3: Glob versions prior to v9 are no longer supported
npm WARN deprecated glob@7.2.3: Glob versions prior to v9 are no longer supported
npm WARN deprecated glob@7.2.3: Glob versions prior to v9 are no longer supported
npm WARN deprecated glob@7.2.3: Glob versions prior to v9 are no longer supported
npm WARN deprecated @babel/plugin-proposal-async-generator-functions@7.20.7: This proposal has been merged to the ECMAScript standard and thus this plugin is no longer maintained. Please use @babel/plugin-transform-async-generator-functions instead
npm WARN deprecated glob@7.1.6: Glob versions prior to v9 are no longer supported
npm WARN deprecated glob@7.1.6: Glob versions prior to v9 are no longer supported
npm WARN deprecated glob@7.1.6: Glob versions prior to v9 are no longer supported
npm WARN deprecated querystring@0.2.1: The querystring API is considered Legacy, new code should use the URLSearchParams API instead.
npm WARN deprecated domexception@4.0.0: Use your platform's native DOMException instead

added 1843 packages, and audited 1844 packages in 3m

172 packages are looking for funding
  run `npm fund` for details

13 vulnerabilities (8 low, 1 high, 4 critical)

To address issues that do not require attention, run:
  npm audit fix

To address all issues possible (including breaking changes), run:
  npm audit fix --force

Some issues need review, and may require choosing
a different dependency.

Run `npm audit` for details.
PS D:\MMRMS\Capstone_Mobile_Customer> 

```

Figure 317: Install source

Step 7: When it finish run command “npx expo run” it will run:

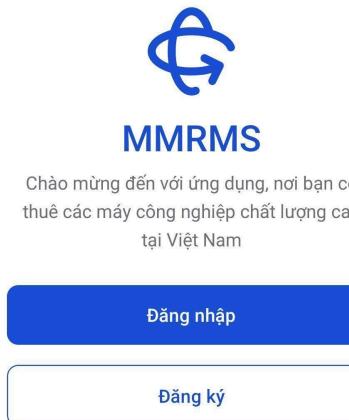
```

Some issues need review, and may require choosing
a different dependency.

Run `npm audit` for details.
PS D:\MMRMS\Capstone_Mobile_Customer> npx expo run
>Select the platform to run » Android
> Using expo run:android
> Opening emulator Medium_Phone_API_34

```

Figure 318: Source run



*Figure 319: Screen when finish run*

### 3. User Manual

#### 3.1 Overview

The Mechanical Machinery Rental and Management System - MMRMS is a comprehensive software platform designed to streamline the rental and management of heavy machinery, ensuring seamless operations for both customers and businesses. With web and mobile interfaces, the system enhances the rental experience by enabling customers to browse equipment, check availability, and make reservations effortlessly.

The system have 4 main workflows, including:

No .	Workflow	Actor
1	Machinery and Component Management	Website Staff
2	Rent and Deliver Mechanical Machineries	Customer, Manager, Technical Staff

3	Check Mechanical Machineries	Customer, Manager, Technical Staff
4	Extend and End Contract	Customer, Manager, Technical Staff

Table 76: Overview Workflows

### 3.2 Machinery and Component Management

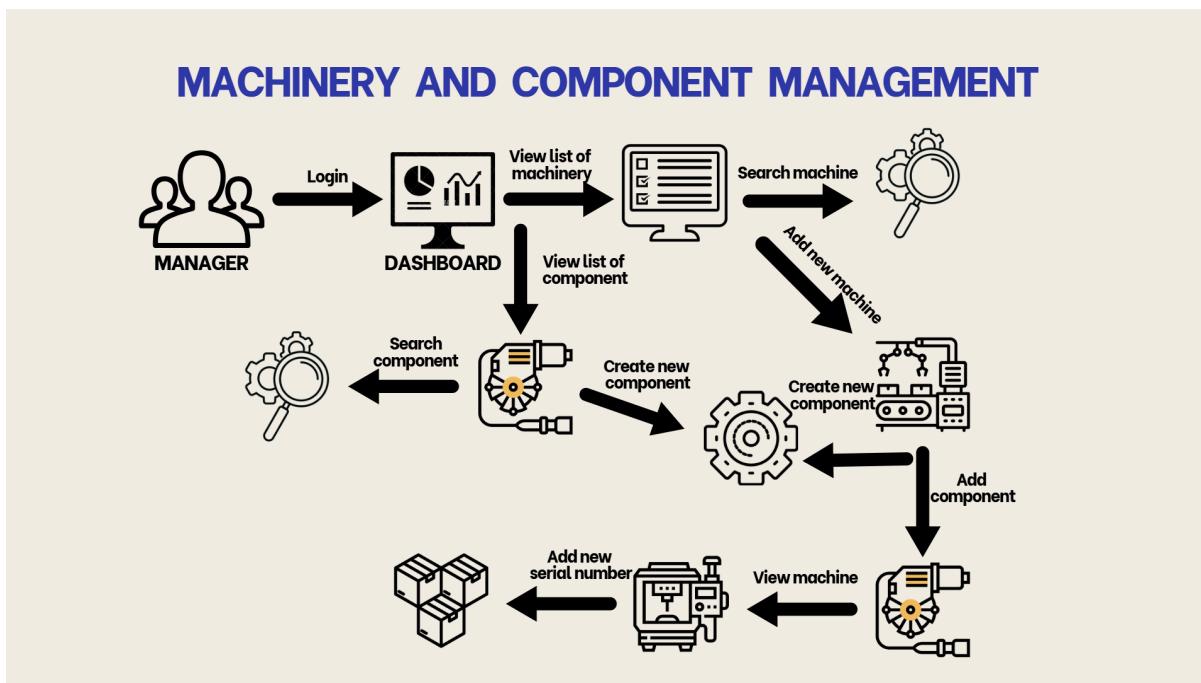


Figure 320: Machinery and Component Management workflow

#### 3.2.1 Website staff login

1. Website staff enter valid username and password, then click on “Đăng nhập”.

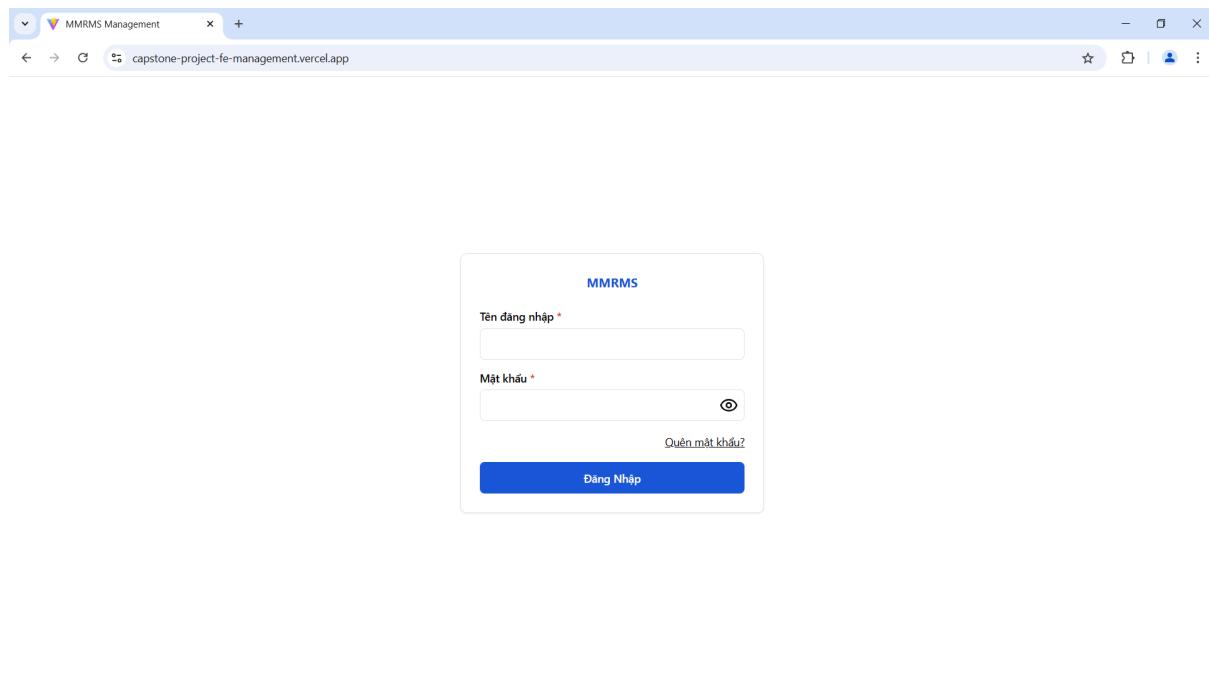


Figure 321: Login page

Tên máy	Loại máy	Giá thuê	Giá máy	Số lượng	Tình trạng
Máy Phay CNC Makino KE-55 Year 2008	Máy phay	25.000 đ	25.000.000 đ	0	<span style="background-color: red; color: white; padding: 2px 5px;">Tạm khóa</span>
Máy khoan bàn taro WDDM ZS3500D	Máy khoan	250.000 đ	250.000.000 đ	10	<span style="background-color: green; color: white; padding: 2px 5px;">Còn hàng</span>
Máy phay giường Vison Wide MS-3117	Máy phay	350.000 đ	350.000.000 đ	15	<span style="background-color: green; color: white; padding: 2px 5px;">Còn hàng</span>
Máy dập thận C đơn Chinfong CP-150	Máy dập	375.000 đ	375.000.000 đ	10	<span style="background-color: green; color: white; padding: 2px 5px;">Còn hàng</span>
Máy phay giường Vison Wide MS-3116	Máy phay	350.000 đ	350.000.000 đ	10	<span style="background-color: green; color: white; padding: 2px 5px;">Còn hàng</span>
MÁY KHOAN NGANG CNC FULL OPTION ( motor lớn, trục Z servor, khoan sâu 90mm )	Máy bào	500.000 đ	500.000.000 đ	3	<span style="background-color: red; color: white; padding: 2px 5px;">Tạm khóa</span>
Máy cắt ống và cắt tấm CNC Gas/Plasma	Máy cắt	100.000 đ	100.000.000 đ	12	<span style="background-color: green; color: white; padding: 2px 5px;">Còn hàng</span>

Figure 322: Machine list page

### 3.2.2 Website staff create new machine

- Website staff click on “Thêm máy”, then fill machine information with components, attributes and terms.

The screenshot shows the 'Create machine' form in the MMRMS Management application. The left sidebar has a 'Mẫu máy' tab selected. The main form includes:

- Tên máy \***: Máy tiện CNC DMG MORI NLX 2500SY/700
- Mô tả \***: A text area with a note about the machine being a high-end model with many features.
- Thông số kỹ thuật \***: A large text area with a file upload button and a note about accepting SVG, PNG, JPG or GIF files.
- Xuất xứ \***: Japan
- Model \***: NLX 2500SY/700
- Chọn loại máy \***: Máy tiện
- Giá máy \***: 2.500.000.000 đ
- Giá thuê / ngày \***: 2.500.000 đ
- Tải trọng của máy \***: 1.200 kg
- Chi phí vận chuyển / km \***: 200.000 đ
- Thumbnails of two machine images**
- Next Step** button: Tiếp tục

Figure 323: Create machine page - Information

The screenshot shows the 'Create machine' form with sections for components, attributes, and terms:

- Thống tin máy → Thành phần và thuộc tính**: This section contains two tables:
  - Thông số kỹ thuật** (Technical Parameters):
 

Tên thuộc tính	Giá trị	Đơn vị tính
Công suất động cơ	25	kW
Tốc độ trực chính	4000	vòng/phút
Đường kính tiện tối	366	mm
Chiều dài tiện tối đ	705	mm
Số trục	3	trục
  - Bộ phận máy** (Machine Components):
 

Số	Hệ thống thủy lực	Số	Giá trị
5	Hệ thống thủy lực	1	100.000.000 đ
6	Băng tải phoi	1	70.000.000 đ
7	Trục chính	1	400.000 đ
8	Hệ thống làm mát	1	50.000 đ
<b>Tổng cộng:</b>			990.450.000 đ
- Điều khoản máy\*** (Machine Terms):
  - Bảo dưỡng máy móc
  - Điều kiện thuê và hoàn trả máy móc
  - Quyền và trách nhiệm của người thuê máy

Figure 324: Create machine page - Components, Attributes, Terms

2. Website staff clicks on “Tạo máy”.

The screenshot shows a web browser window for 'MMRMS Management' with the URL 'capstone-project-fe-management.vercel.app/staff/machineries/detail/18'. The left sidebar has a blue header 'MMRMS' and a 'Mẫu máy' section with various machine-related options. The main content area displays a machine detail card for a 'Máy tiện CNC DMG MORI NLX 2500SY/700'. The card includes a thumbnail image, machine details (Tên máy: Máy tiện CNC DMG MORI NLX 2500SY/700; Xuất xứ: Japan; Loại máy: Máy tiện; Giá máy: 2.500.000.000 đ; Ngày tạo: 30-11-2024; Khối lượng: 1.2kg), and four buttons: 'Xem thuộc tính', 'Sửa thông tin', 'Kích hoạt máy', and 'Nhập máy'. Below this is a section titled 'DANH SÁCH SERIAL NUMBER' with a status bar showing 'Còn hàng' (In stock) and a search bar.

*Figure 325: Machine detail page*

### 3.2.3 Website staff add machine serial number list

- Website staff clicks on “Nhập máy”, then enters the serial number and condition percent.

The screenshot shows the same web browser window as Figure 325, but with a modal dialog box overlaid. The modal is titled 'Thêm máy mới' (Add new machine) and contains three input fields for 'Số serial': 'MT-02-2024-00001' with a condition of '100%', 'MT-02-2024-00002' with a condition of '90%', and a third field partially visible. There is also a '+ Thêm số serial' button. The background page remains largely the same, showing the machine detail card and the 'DANH SÁCH SERIAL NUMBER' section.

*Figure 326: Add machine serial number modal*

- Website staff click on “Tạo”, then view the machine serial number list of machines.

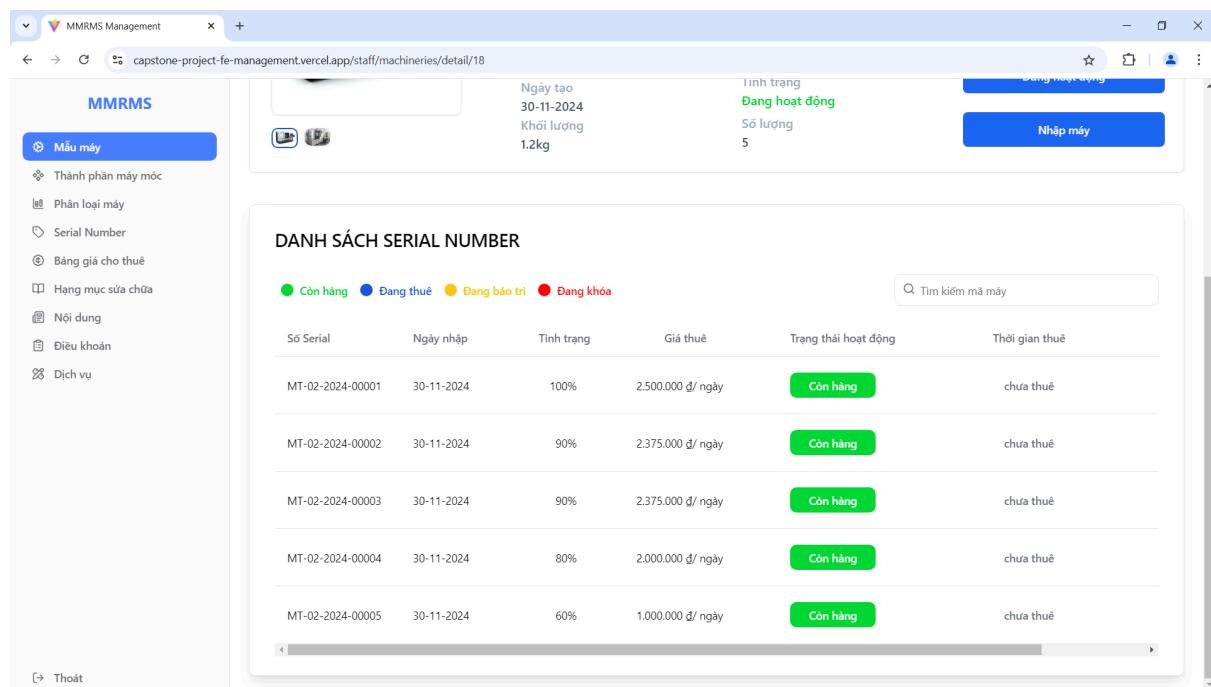


Figure 327: Machine detail page

### 3.3 Rent and Deliver Mechanical Machineries

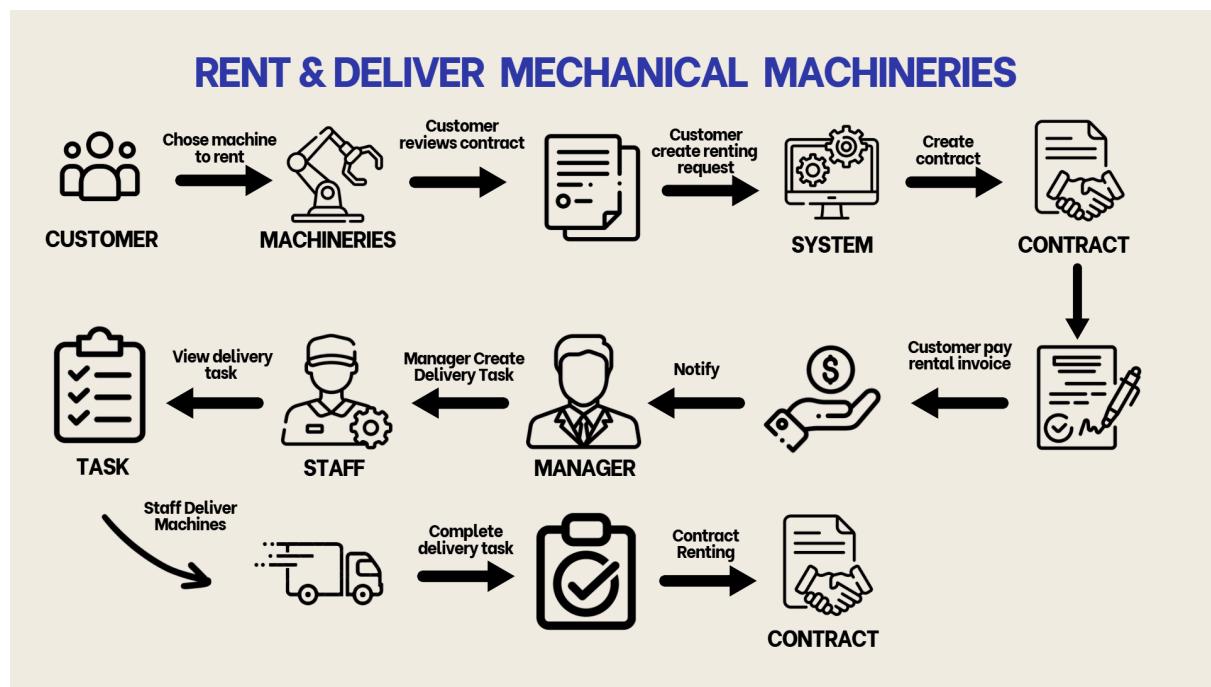


Figure 328: Rent and Deliver Mechanical Machineries workflow

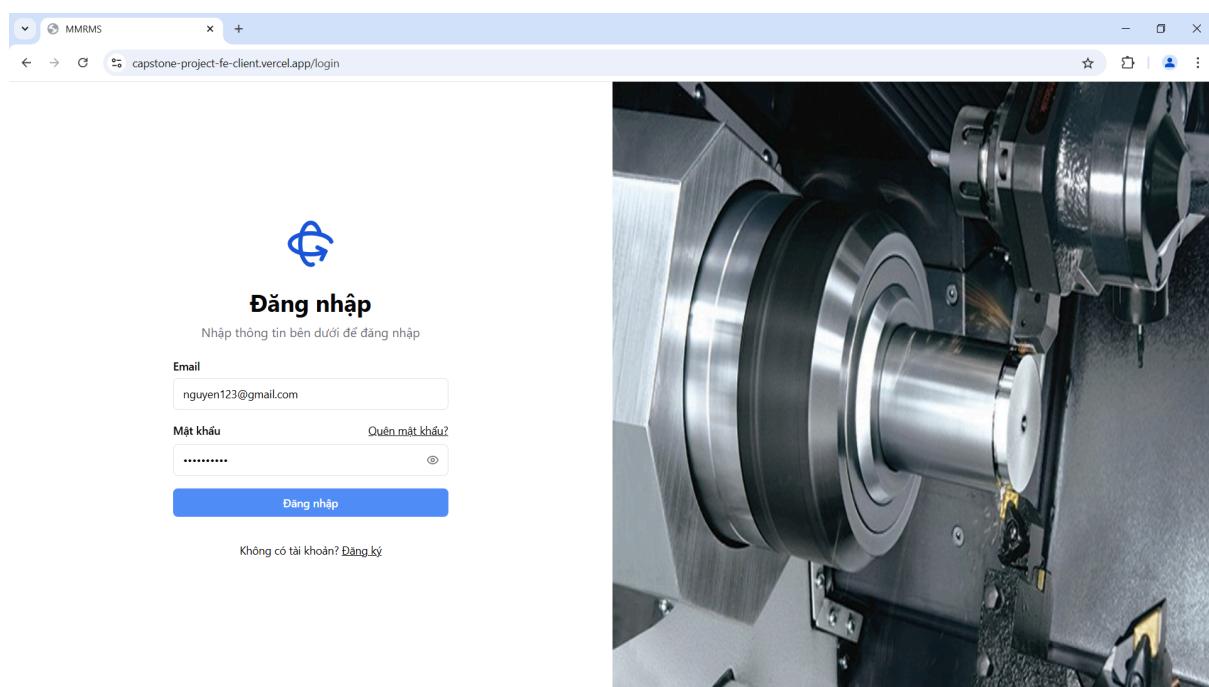
#### 3.3.1 Customer login

1. Customer clicks on “Đăng nhập” button.



*Figure 329: Home page client MMMMS*

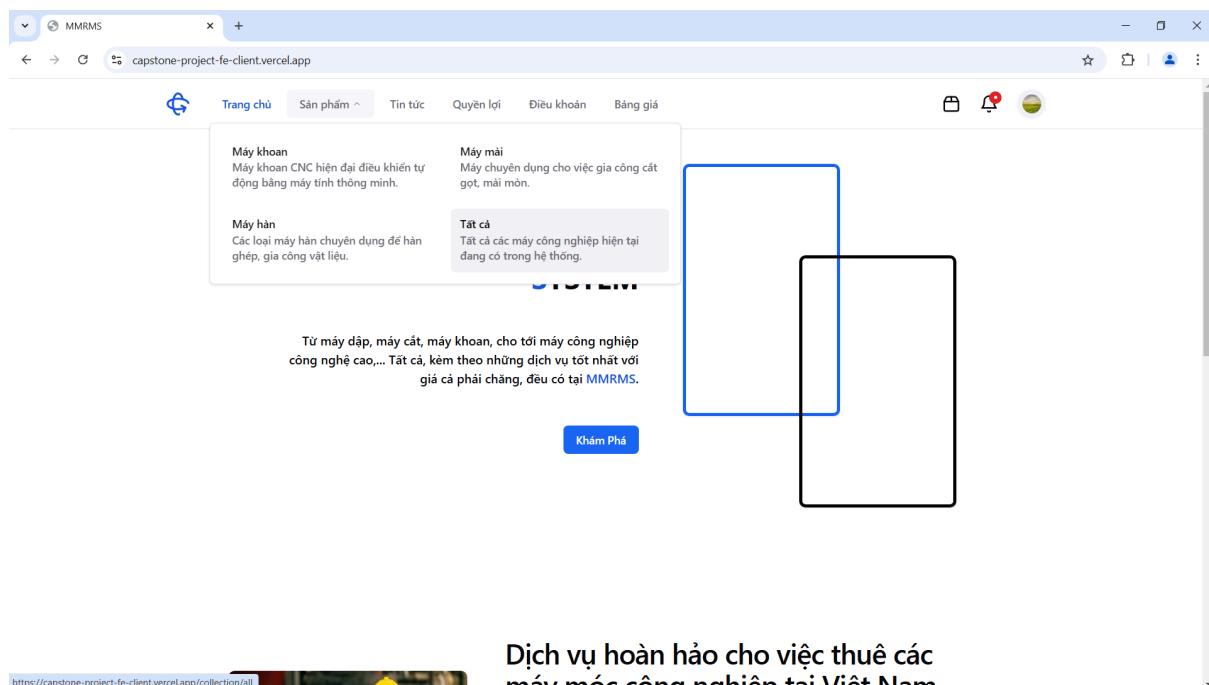
2. Enter valid email and password, then click on “Đăng nhập” button.



*Figure 330: Login page*

### 3.3.2 View Mechanical Machinery

1. Navigate to “Sản phẩm” in header menu, select “Tất cả” option and clicks on “Xem chi tiết”.



## Dịch vụ hoàn hảo cho việc thuê các máy móc công nghiệp tại Việt Nam

Figure 331: Header menu

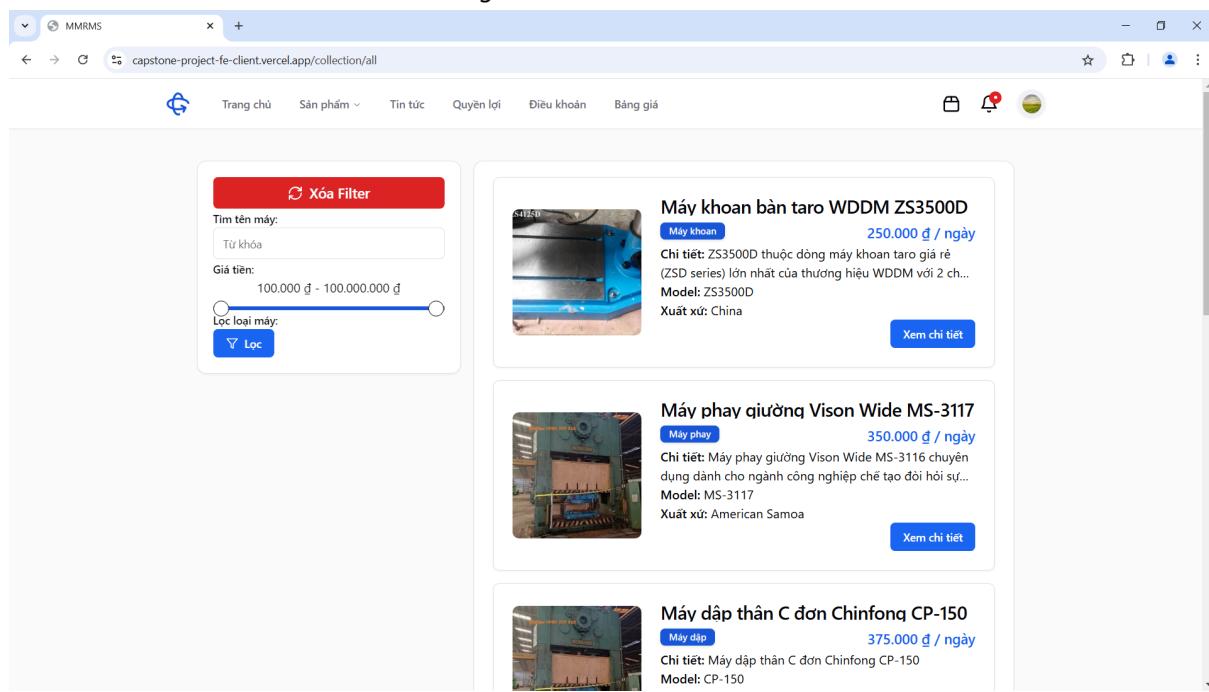


Figure 332: Mechanical Machinery List Page

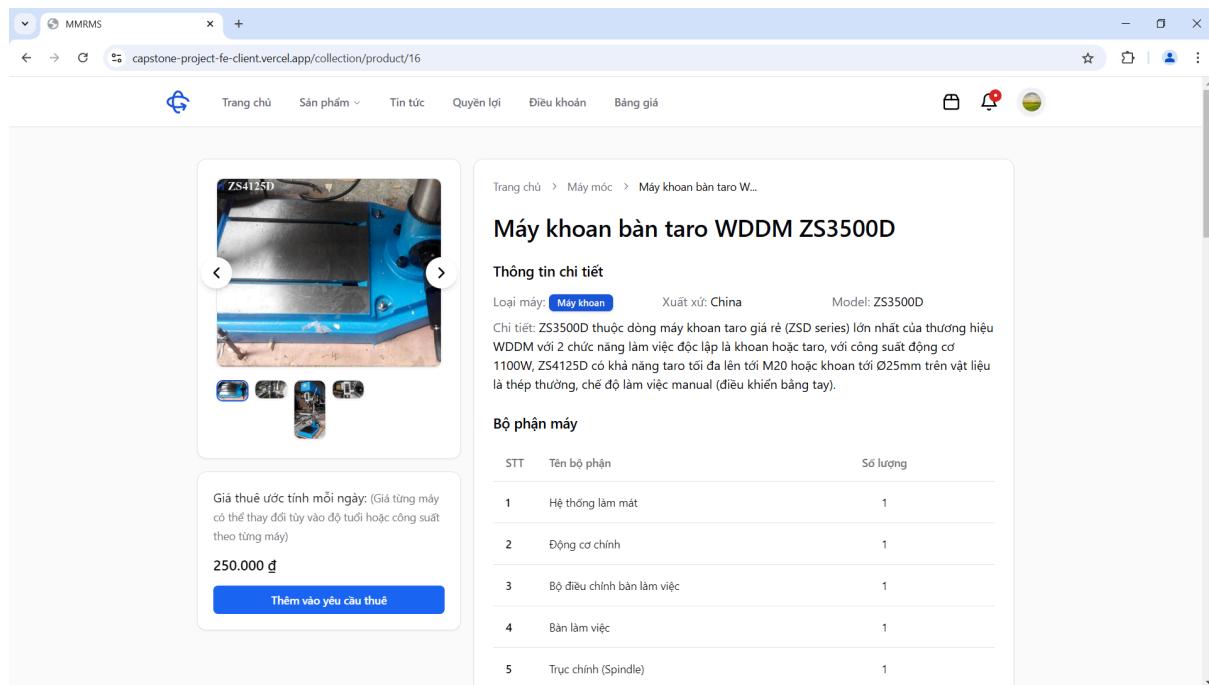


Figure 333: Mechanical Machinery Detail Page

### 3.3.3 Create renting request

- Customer clicks on “Thêm vào yêu cầu thuê”, and clicks on “Vào yêu cầu”.

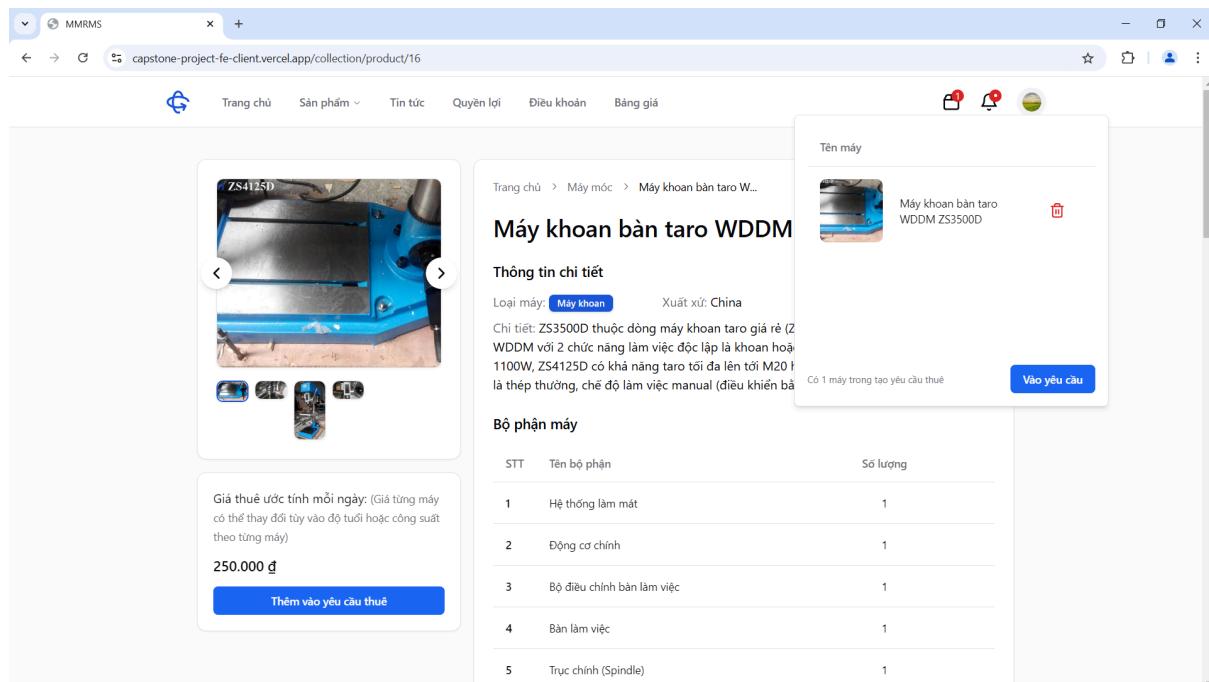


Figure 334: View summary renting request

- Customers select the rent period by clicking on “Thời gian thuê” and choose delivery date at “Ngày giao hàng”.

**Yêu cầu thuê**  
Có 1 máy trong yêu cầu thuê

Sản phẩm	Thời gian thuê	Giá thuê/ngày
Máy khoan bàn taro WDDM Z3500D Hiện tại có: 7 máy	<input type="checkbox"/> MK-02-2024-00007	245.000 ₫
	<input type="checkbox"/> MK-02-2024-00006	150.000 ₫
	<input type="checkbox"/> MK-02-2024-00005	125.000 ₫
	<input type="checkbox"/> MK-02-2024-00004	200.000 ₫
	<input type="checkbox"/> MK-02-2024-00003	238.000 ₫
	<input type="checkbox"/> MK-02-2024-00002	238.000 ₫

**Chọn thời gian thuê**

Thời gian thuê \*

5 tháng

Ngày giao hàng \* ⓘ  
ngày 9 tháng 12 năm 2024

**Địa chỉ giao hàng**

Địa chỉ \* Chọn địa chỉ

Hiện đang chưa gán địa chỉ giao hàng

**Thông tin ngân hàng** ⓘ

Số tài khoản \*

Tên ngân hàng \*

Figure 335: View available machine serial numbers

3. Customers select machine serial numbers they want to rent (they can change the date end for each item).

**Yêu cầu thuê**  
Có 1 máy trong yêu cầu thuê

Sản phẩm	Thời gian thuê	Giá thuê/ngày
Máy khoan bàn taro WDDM Z3500D Hiện tại có: 7 máy	<input checked="" type="checkbox"/> MK-02-2024-00007	3 tháng 245.000 ₫
	<input checked="" type="checkbox"/> MK-02-2024-00006	5 tháng 150.000 ₫
	<input type="checkbox"/> MK-02-2024-00005	125.000 ₫
	<input type="checkbox"/> MK-02-2024-00004	200.000 ₫
	<input type="checkbox"/> MK-02-2024-00003	238.000 ₫
	<input type="checkbox"/> MK-02-2024-00002	238.000 ₫

**Chọn thời gian thuê**

Thời gian thuê \*

5 tháng

Ngày giao hàng \* ⓘ  
ngày 9 tháng 12 năm 2024

**Địa chỉ giao hàng**

Địa chỉ \* Chọn địa chỉ

Hiện đang chưa gán địa chỉ giao hàng

**Thông tin ngân hàng** ⓘ

Số tài khoản \*

Tên ngân hàng \*

Figure 336: Select machine serial numbers

4. Next, they choose address by clicks on “Chọn địa chỉ” and select address that they want to deliver to.

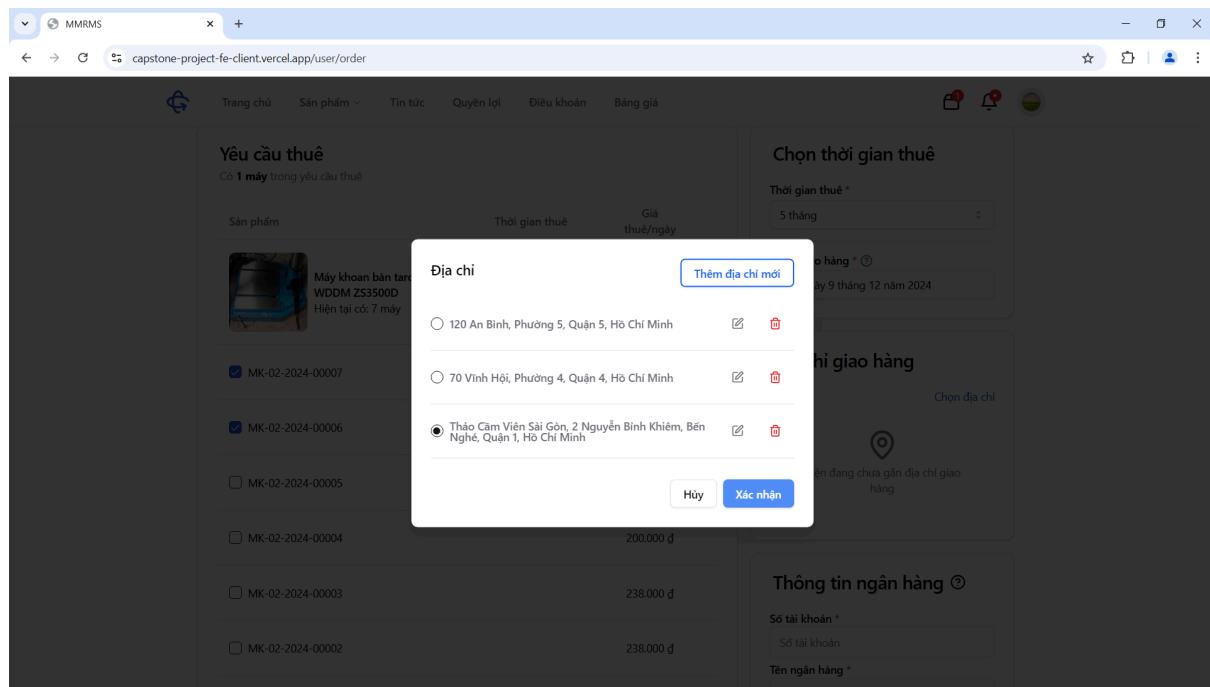


Figure 337: Select delivery address

## 5. Customer enter bank information.

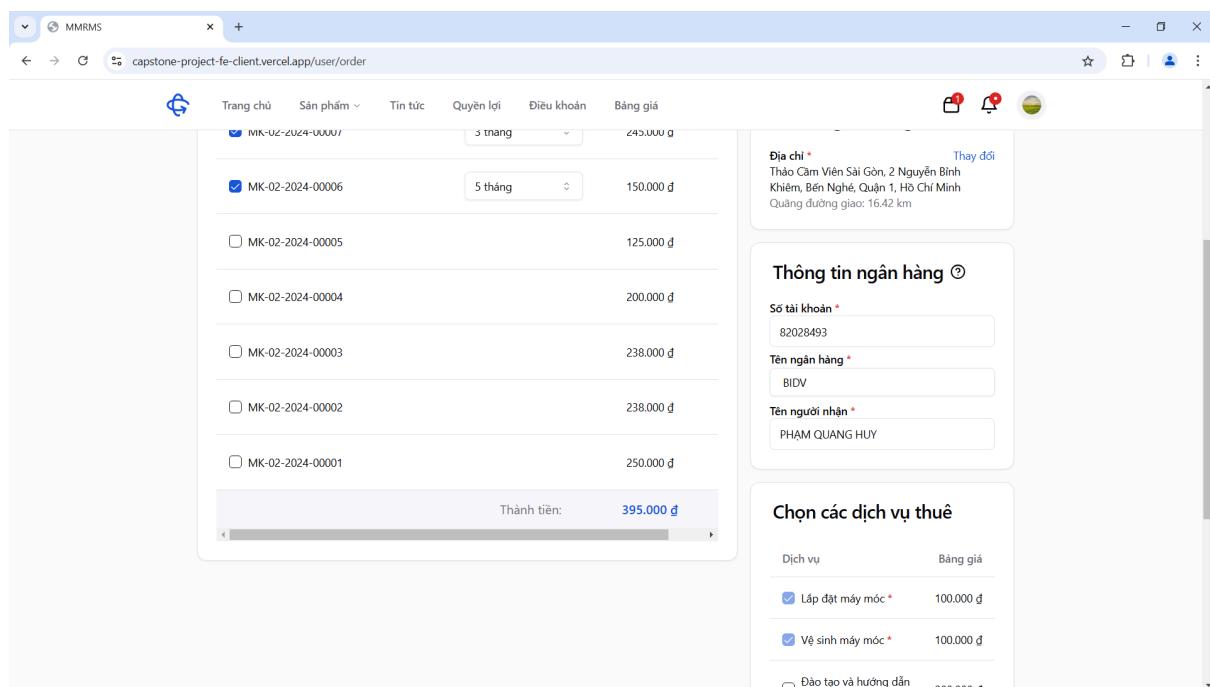


Figure 338: Bank information

## 6. Customer selects services and clicks “Tiếp theo”.

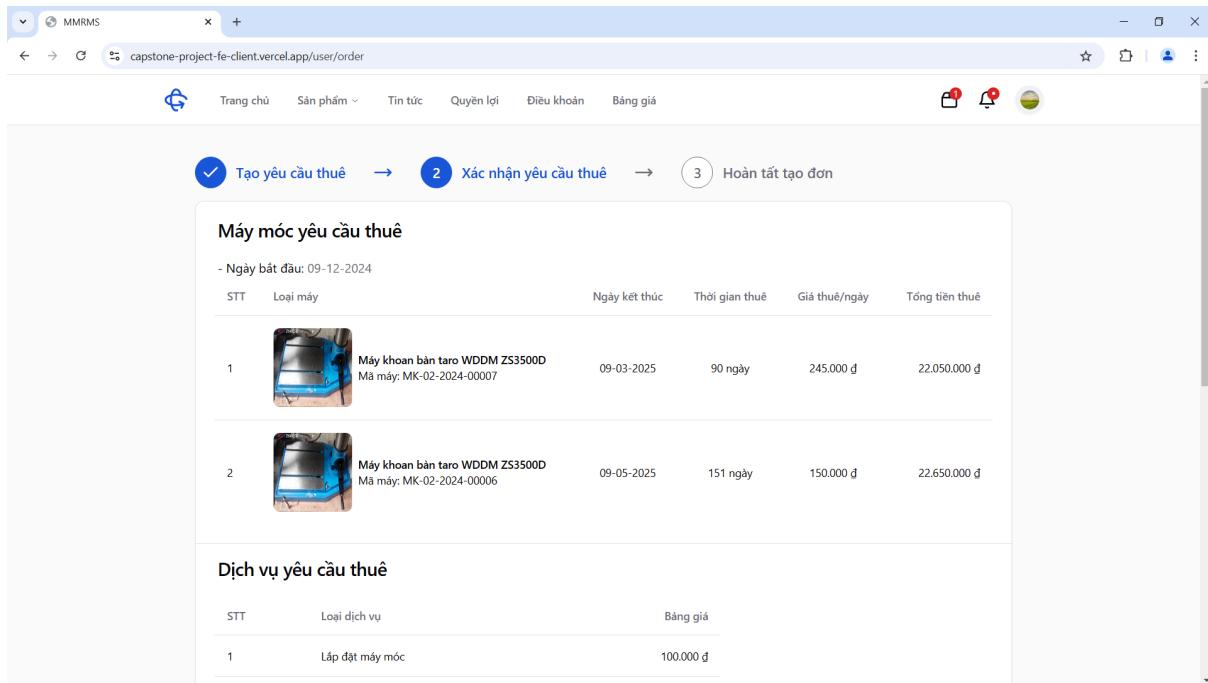


Figure 339: Renting request confirmation step

7. Customer view summary about renting request, ticks on “Tôi đồng ý và tuân theo Điều khoản MMRMS” then click on “Tiếp theo”.

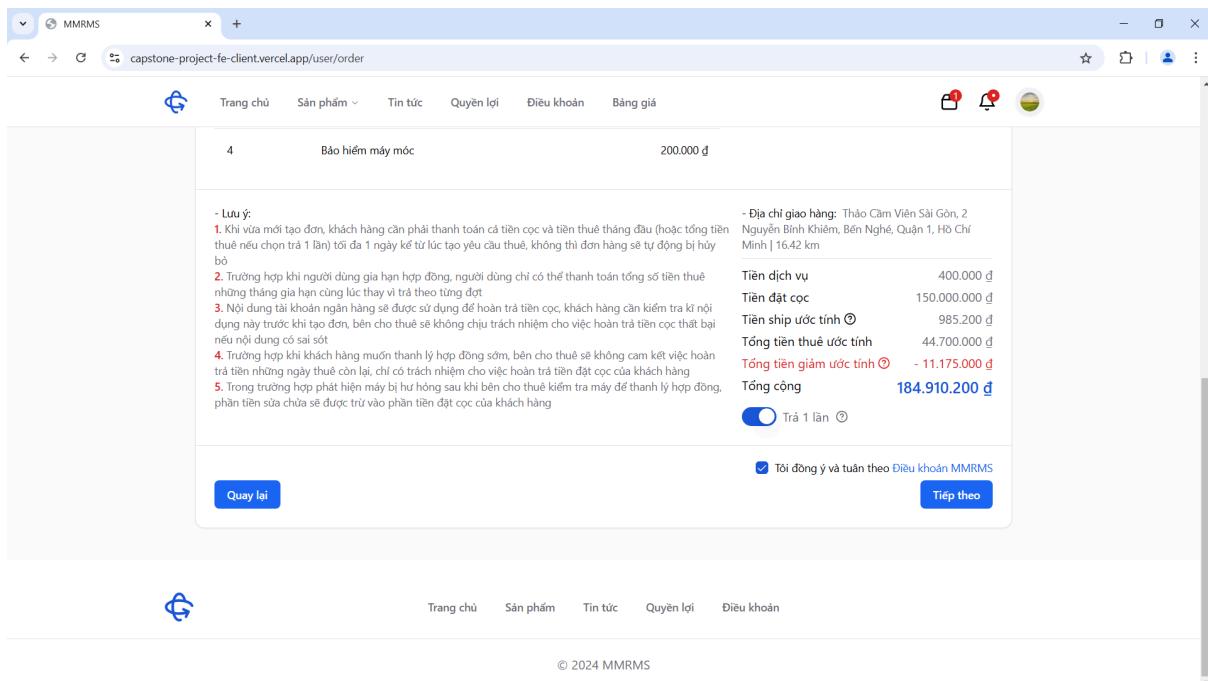


Figure 340: Renting request confirmation step

8. Customer views the review of contracts in the renting request, then clicks on “Tạo đơn”.

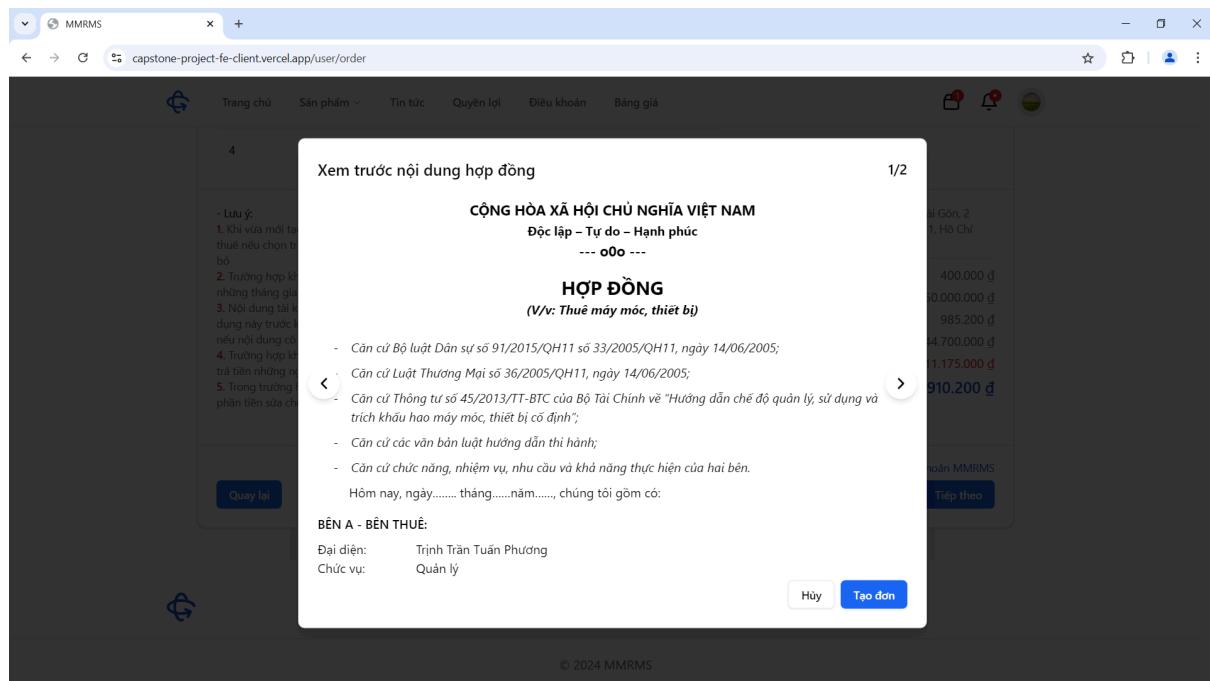


Figure 341: Review contract

### 3.3.4 Customer view renting request and contract details

- Customer selects the latest renting request and view details.

STT	Mã yêu cầu thuê	Tổng tiền thuê	Ngày tạo	Loại thanh toán	Trạng thái
1	REH20241130NO002	45.095.000 đ	30-11-2024	Trả 1 lần	Chưa trả cọc
2	REH20241128NO002	34.200.000 đ	28-11-2024	Trả 1 lần	Đã ký
3	REH20241126NO003	836.000.000 đ	26-11-2024	Trả 1 lần	Đã giao
4	REH20241126NO002	106.750.000 đ	26-11-2024	Trả 1 lần	Đã giao
5	REH20241125NO002	114.375.000 đ	25-11-2024	Trả 1 lần	Đã giao

Figure 342: Renting request list

The screenshot shows a web browser window for the MMRMS platform. The URL is [capstone-project-fe-client.vercel.app/user/renting-request-detail/REH20241130NO002](https://capstone-project-fe-client.vercel.app/user/renting-request-detail/REH20241130NO002). The page displays a detailed view of a rental request. At the top, there's a header with navigation links: Trang chủ, Sản phẩm, Tin tức, Quyền lợi, Điều khoản, and Bảng giá. Below the header, the main content area is titled "Nội dung yêu cầu thuê".

**Yêu cầu thuê REH20241130NO002**

Buttons: Tải hợp đồng, Hủy yêu cầu thuê, Chưa trả cọc.

Information fields:

- Khách hàng:** Tên người đặt: Trịnh Trần Tuấn Phương, Số điện thoại: 0123123122, Tên công ty: CÔNG TY CỔ PHẦN SẢN XUẤT VÀ KINH DOANH VINFAST, Email: nguyen123@gmail.com
- Thông tin ngân hàng:** Số tài khoản: 82028493, Tên ngân hàng: Ngân hàng TMCP Đầu tư và Phát triển Việt Nam (BIDV), Tên người nhận: PHẠM QUANG HUY
- Địa chỉ:** Thảo Cầm Viên Sài Gòn, 2 Nguyễn Bình Khiêm, Bến Nghé, Quận 1, Hồ Chí Minh | 16.42 km
- Dịch vụ thuê:** Lắp đặt máy móc (100.000 đ), Vệ sinh máy móc (100.000 đ), Bảo hiểm máy móc (200.000 đ)
- Máy móc:** Có 2 máy trong yêu cầu thuê.
- Thông tin thanh toán:** Phí vận chuyển: 985.200 đ

Figure 343: Renting request detail

2. Customer selects a specific contract and views the contract's details.

The screenshot shows a web browser window for the MMRMS platform. The URL is [capstone-project-fe-client.vercel.app/user/contract-detail/CON20241130NO0004](https://capstone-project-fe-client.vercel.app/user/contract-detail/CON20241130NO0004). The page displays a detailed view of a contract. At the top, there's a header with navigation links: Trang chủ, Sản phẩm, Tin tức, Quyền lợi, Điều khoản, and Bảng giá.

**Hợp đồng CON20241130NO0004**

Buttons: ... Chưa ký.

Information fields:

- Khách hàng:** Tên người đặt: Trịnh Trần Tuấn Phương, Số điện thoại: 0123123122, Tên công ty: CÔNG TY CỔ PHẦN SẢN XUẤT VÀ KINH DOANH VINFAST, Email: nguyen123@gmail.com
- Thông tin ngân hàng:** Số tài khoản: 82028493, Tên ngân hàng: Ngân hàng TMCP Đầu tư và Phát triển Việt Nam (BIDV), Tên người nhận: PHẠM QUANG HUY
- Địa chỉ:** Thảo Cầm Viên Sài Gòn, 2 Nguyễn Bình Khiêm, Bến Nghé, Quận 1, Hồ Chí Minh | 16.42 km
- Máy móc:** Loại máy: Máy khoan bắn taro WDDM ZS3500D, Tiền thuê/Ngày: 245.000 đ
- Lịch sử thanh toán:**
  - Mã thanh toán: INV20241130NO007, Loại thanh toán: Tiền cọc, Trạng thái: Chưa thanh toán. Thời gian áp dụng (91 ngày) Từ 09-12-2024 đến 09-03-2025, Tổng số tiền: 75.000.000 đ
  - Mã thanh toán: Loại thanh toán: Tiền hoàn trả, Trạng thái: Chưa thanh toán. Thời gian áp dụng (91 ngày) Từ 09-03-2025 đến 09-03-2025, Tổng số tiền: 75.000.000 đ

Figure 344: Contract detail

3. Customer clicks on “Tải hợp đồng” to view contract in pdf format.

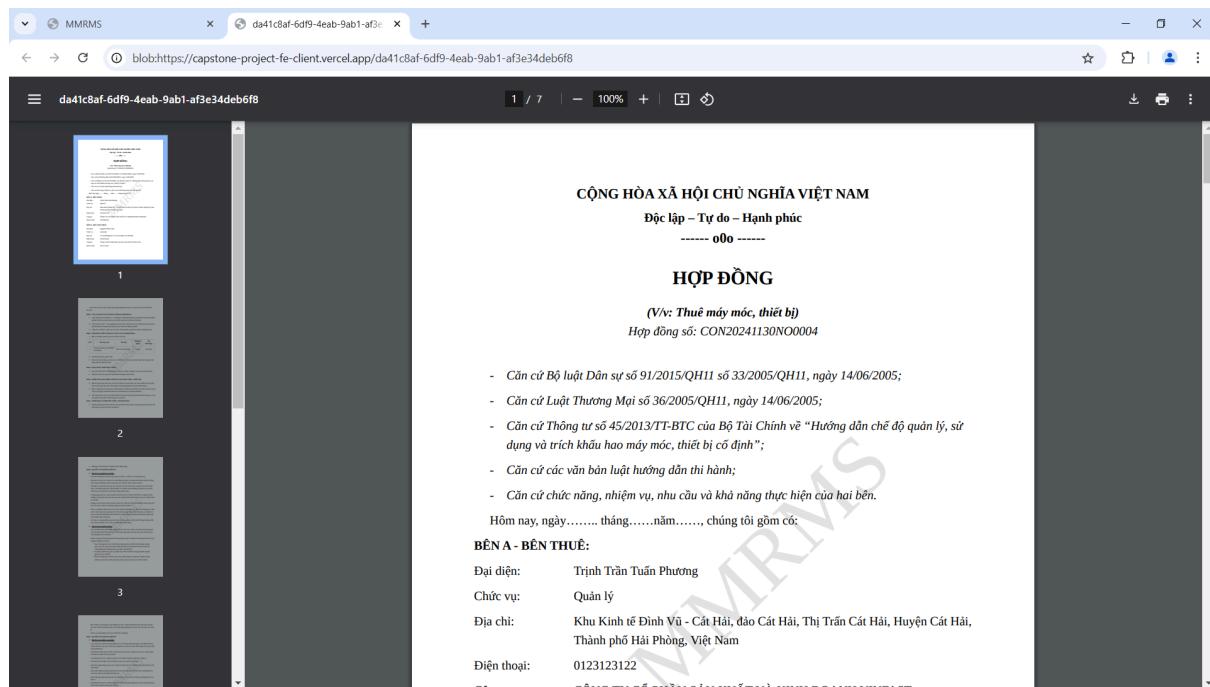


Figure 345: PDF Contract

### 3.3.5 Customer pay rental invoice

1. Navigate to “Thanh toán”, select the invoice to pay.

STT	Mã thanh toán	Loại	Ngày tạo	Trạng thái	Khoản tiền
1	INV20241130NO007	Tiền thuê	30-11-2024	Chưa thanh toán	196.781.450 đ
2	INV20241128NO005	Tiền sửa chữa	28-11-2024	Hoàn tất	411.000 đ
3	INV20241128NO004	Tiền thuê	28-11-2024	Hoàn tất	110.236.350 đ
4	INV20241127NO003	Tiền thuê	27-11-2024	Chưa thanh toán	53.900.000 đ
5	INV20241127NO002	Tiền thuê	27-11-2024	Đã hủy	0 đ

Figure 346: Invoice list page

**Nội dung thanh toán**

**Thanh toán INV20241130NO007**

**Thông tin thanh toán**

Mã giao dịch	Loại giao dịch	Số tiền
CON20241130NO0004	Thanh toán tiền thuê	75.000.000 đ
CON20241130NO0004	Thanh toán tiền thuê	22.295.000 đ
CON20241130NO0005	Thanh toán tiền thuê	75.000.000 đ
CON20241130NO0005	Thanh toán tiền thuê	22.800.000 đ
		Tổng cộng: 195.095.000 đ

Figure 347: Invoice detail page

2. Select “Thanh toán” and check out.

**Chi tiết đơn hàng**

Mở App Ngân hàng bất kỳ để **quét mã QR** hoặc **chuyển khoản** chính xác số tiền bên dưới

**VIETQR PRO**

**Ngân hàng**  
**Ngân hàng TMCP Quân đội**

Chủ tài khoản:  
**BUI NGUYEN PHUC KHANG**

Số tài khoản:  
**VQRQAAWKT3216**

Số tiền:  
**19.678 vnd**

Nội dung:  
**196781450 VND**

**napas 247** | **MB**

**Xem**

**Hủy**

Lưu ý: Nhập chính xác số tiền **19.678** khi chuyển khoản

Figure 348: Payment page

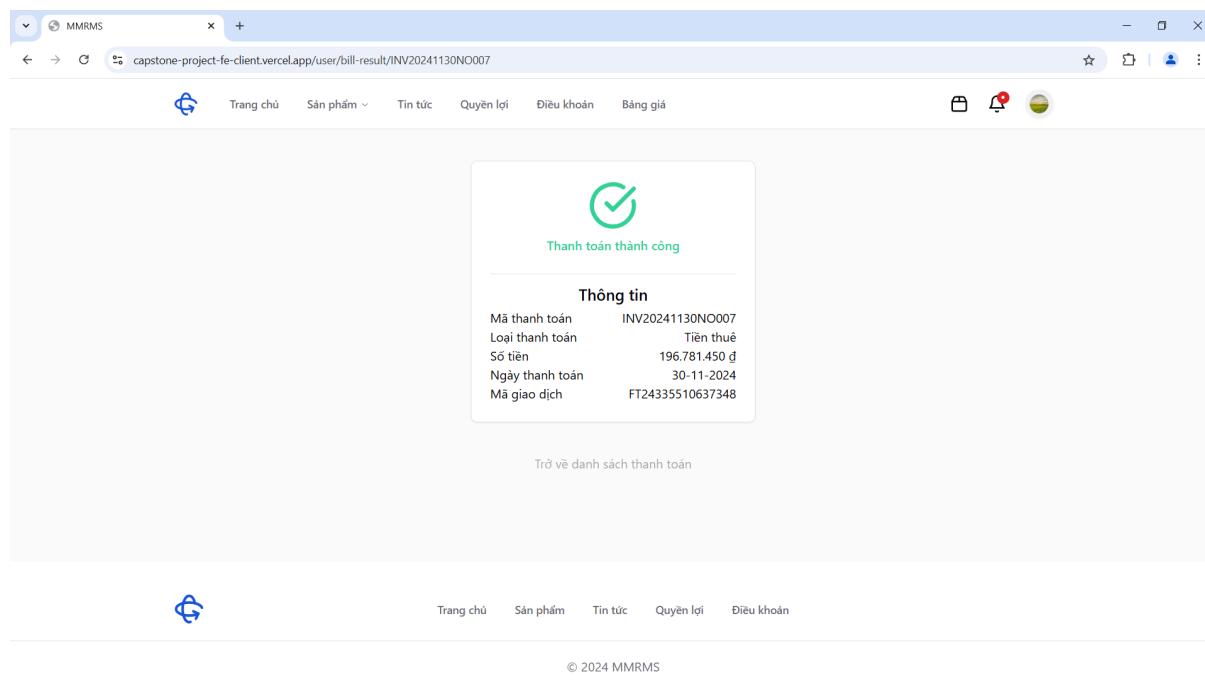


Figure 349: Payment success

### 3.3.6 Manager create delivery task

- Manager login, navigate to “Vận chuyển” then clicks on “Tạo mới công việc”.

DANH SÁCH VẬN CHUYỂN			
<input checked="" type="radio"/> Chưa thực hiện <input type="radio"/> Đang giao hàng <input checked="" type="radio"/> Giao hàng thành công <input type="radio"/> Giao thất bại <input type="radio"/> Đã xử lý			
Người tạo: Hoàng Minh	Nhân viên thực hiện: Trần Phước Khoa	Ngày giao công việc: 02-12-2024	...
Người tạo: Hoàng Minh	Nhân viên thực hiện: KhoaTechStaff	Ngày giao công việc: 28-11-2024	...

Figure 350: Delivery list page

- Manager select renting request, clicks on “Chọn tất cả” at “Danh sách hợp đồng” and clicks on “Tiếp tục”.

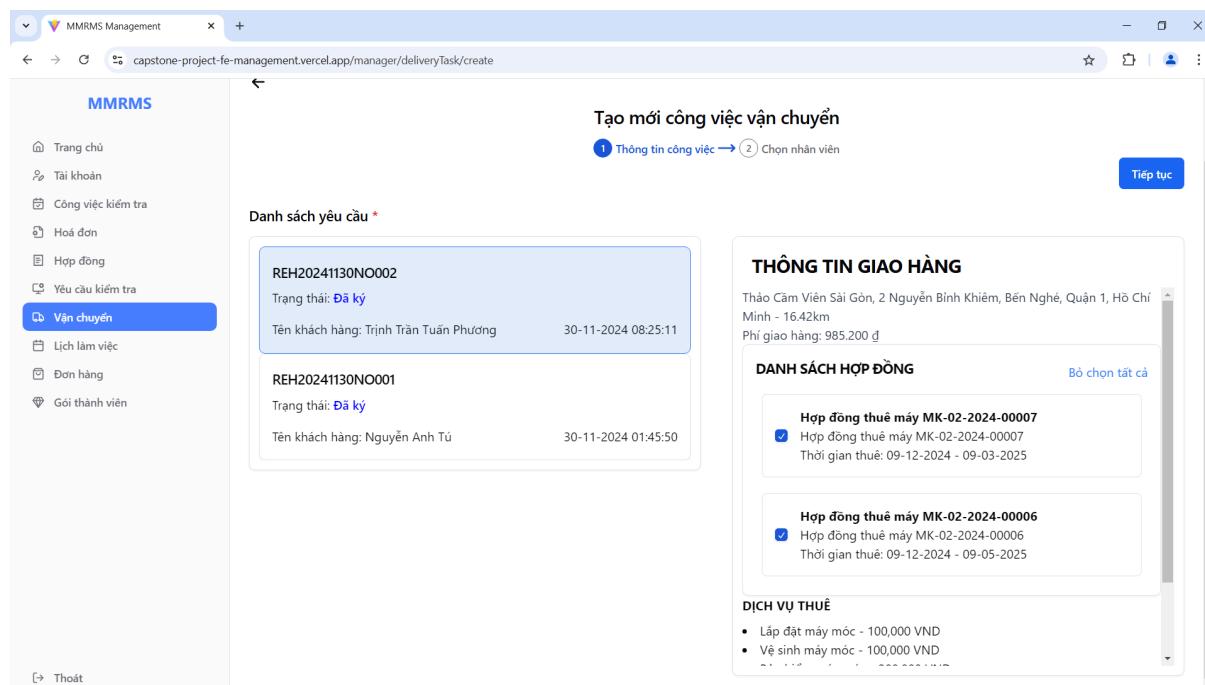


Figure 351: Create delivery task page

3. Manager selects the delivery date at “Ngày giao” and assigns technical staff by clicking on “Nhân viên”, then “Tạo đơn giao”.

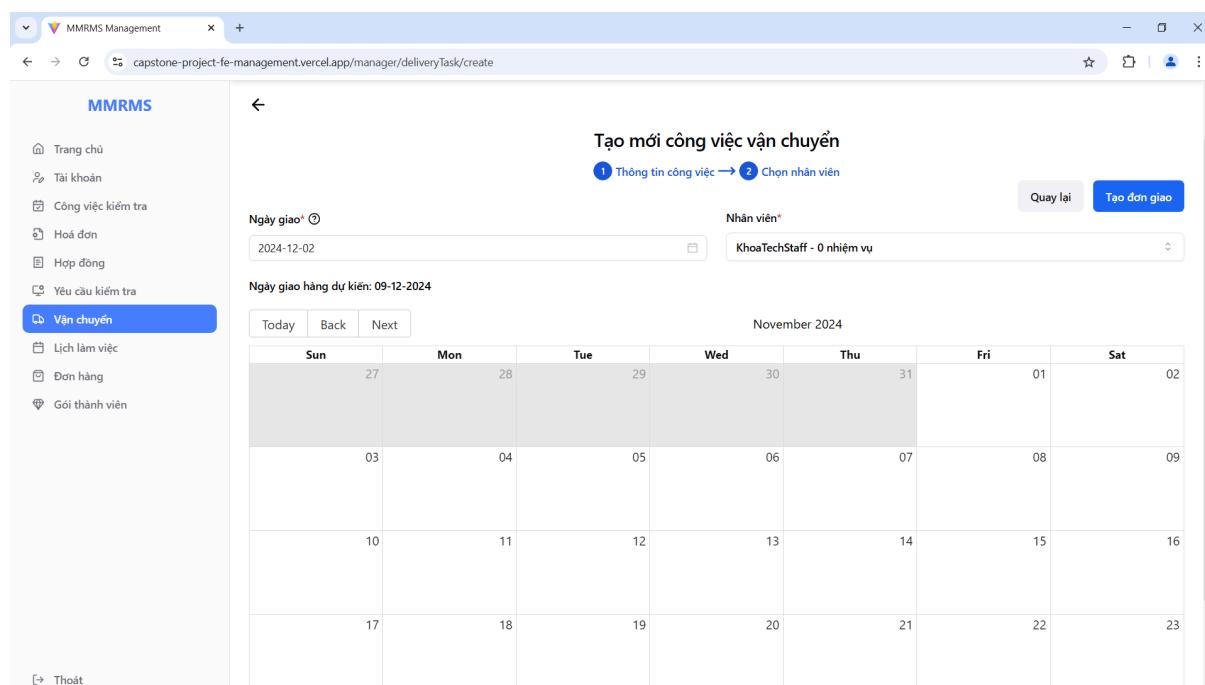


Figure 352: Assign staff page

4. Manager view delivery task details.

The screenshot shows the MMRMS Management application interface. On the left, a sidebar menu lists various options: Trang chủ, Tài khoản, Công việc kiểm tra, Hoá đơn, Hợp đồng, Yêu cầu kiểm tra, Văn chuyển (which is selected and highlighted in blue), Lịch làm việc, Đơn hàng, and Gói thành viên. The main content area displays a delivery task detail page. At the top right, there is a user profile icon with a red notification badge showing '99+', and the text 'Khoa Quản lý'. Below the header, the task ID 'REH20241130NO002' is shown, along with the date '30-11-2024' and status 'Trạng thái: Chưa giao'. The task details include: Mã công việc: DT35; Loại công việc: N/A; Người tạo: Khoa; Ngày thực hiện công việc: 02-12-2024; Nhân viên giao hàng: KhoaTechStaff; Ngày hoàn thành công việc: N/A; Khách hàng: Trịnh Trần Tuấn Phương; Số điện thoại khách hàng: 0123123122; Người nhận: N/A; Địa chỉ: Thảo Cầm Viên Sài Gòn, 2 Nguyễn Bình Khiêm, Bến Nghé, Quận 1, Hồ Chí Minh; and Ghi chú: N/A. Below this, a section titled 'Danh sách hợp đồng giao hàng' shows two entries: CON20241130NO0004 and CON20241130NO0005, both marked as 'Đang chờ' (Pending) with N/A notes. At the bottom left of the main content area, there is a link 'Đóng' (Close).

Figure 353: Delivery task detail page

### 3.3.7 Technical staff deliver machines

1. Technical staff selects delivery tasks and clicks on “Nhận công việc”, then view task details.

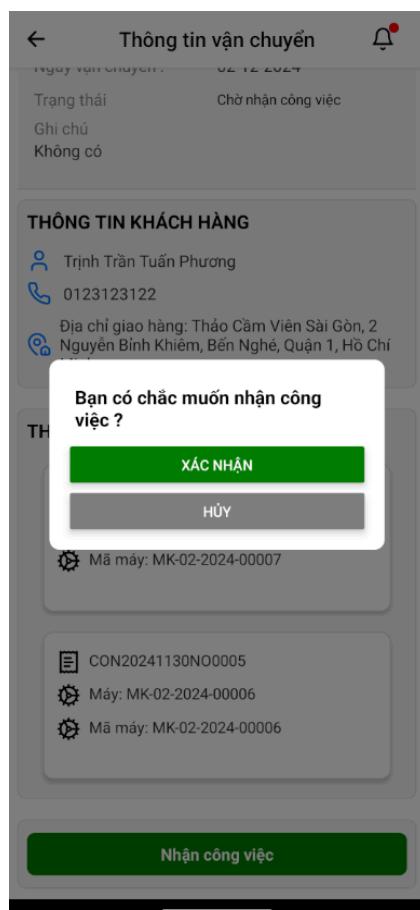


Figure 354: Receive Delivery Task

2. After delivery successfully, technical staff enter the recipient name, and take a photo for each machine in the renting request for confirmation. Then click on “Hoàn thành”.

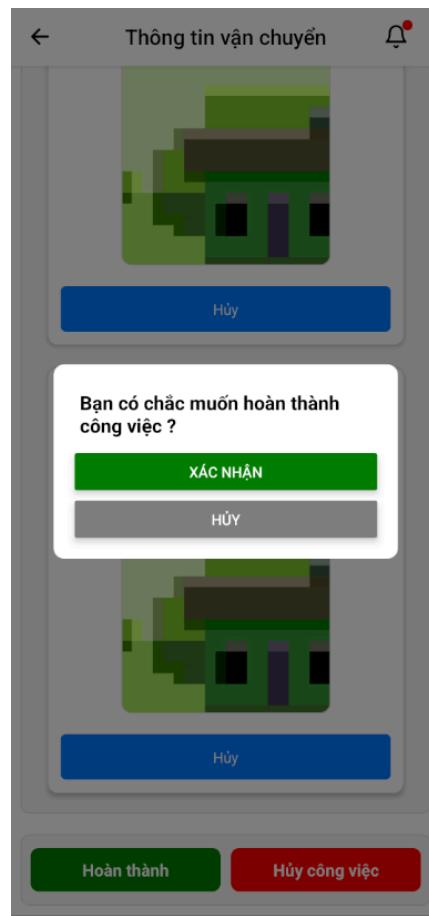


Figure 355: Finish Delivery Task

### 3.3.8 Customer view renting request history

Thời gian cập nhật	Người cập nhật	Nội dung
11:16:19, 30-11-2024	KhoaTechStaff	Đơn giao hàng được hoàn thành toàn bộ
11:14:05, 30-11-2024	KhoaTechStaff	Thay đổi trạng thái từ [Mới tạo] trở thành [Đang giao]
08:43:03, 30-11-2024	Khoa	Tạo và giao đơn giao cho nhân viên tên: KhoaTechStaff

Figure 356: Renting request details page

### 3.4 Check Mechanical Machineries

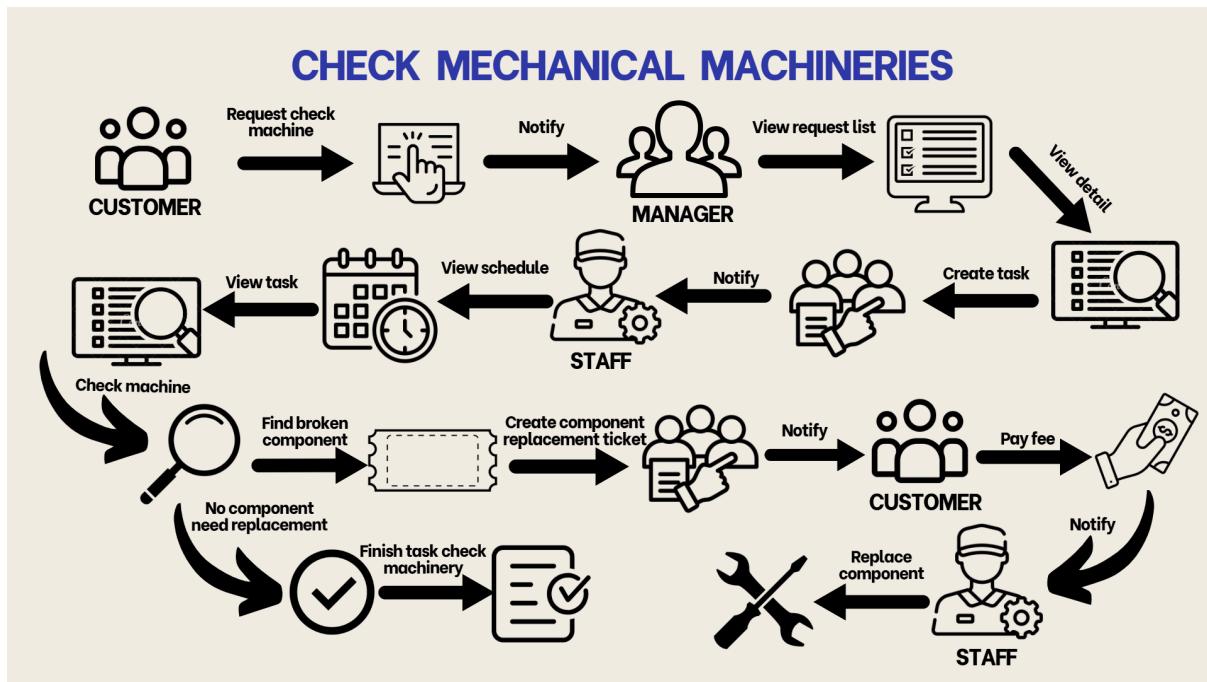


Figure 357: Check Mechanical Machineries workflow

#### 3.4.1 Login Customer website.

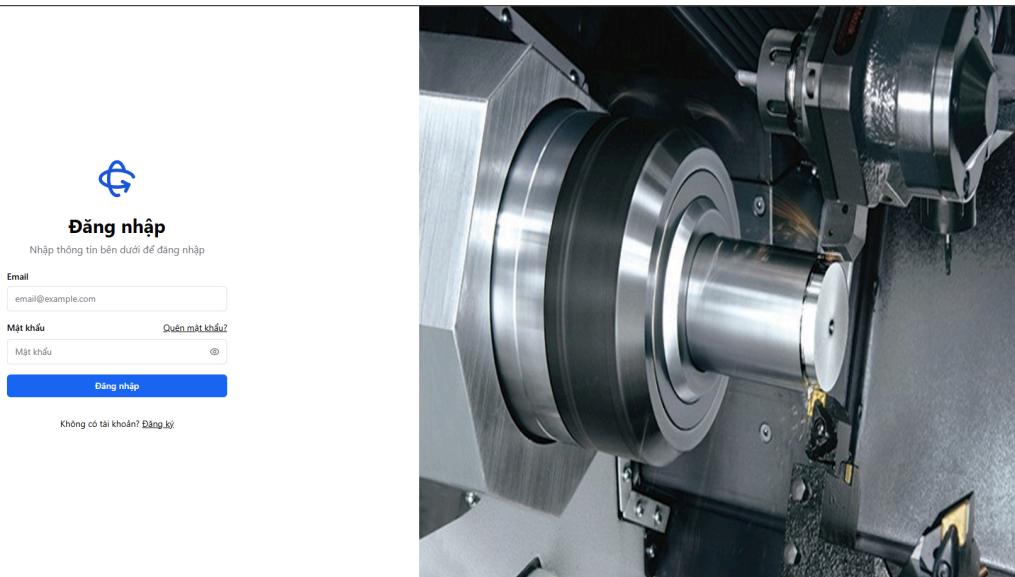
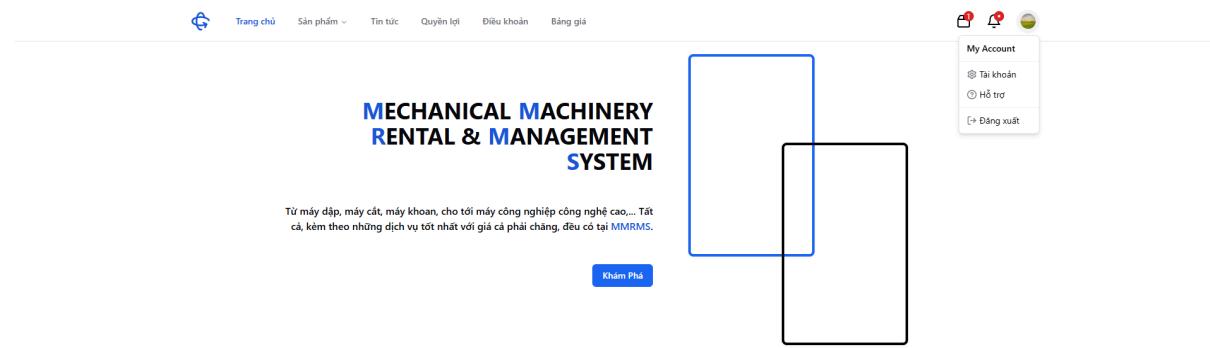


Figure 358: Login page

#### 3.4.2 Select the avatar icon then a dropdown appears and select "Tài khoản".



### Dịch vụ hoàn hảo cho việc thuê các máy móc công nghiệp tại Việt Nam



#### Chi phí

Giá cả hợp lý, chi phí ổn áp, phù hợp cho cả việc thuê ngắn hạn và lâu dài.

#### Sản phẩm

Sản phẩm chất lượng cao, mẫu mã luôn được cập nhật mới nhất tại thị trường Việt Nam.

Figure 359: Home page

#### 3.4.3 Select "Yêu cầu sửa chữa".

STT	Mã đơn yêu cầu	Mã hợp đồng	Trạng thái	Ngày tạo
1	MÁY KHOAN NGANG CNC FULL OPTION ( motor lăn trục Z servo, khoan sâu 80mm ) Mã máy: MA-01-2024-0001 Mã yêu cầu: REQ20241126NO002	CON20241126NO0006	Tạo	26-11-2024
2	Máy đập thép C đòn Chinlong CP-150 Mã máy: MD-01-2024-00010 Mã yêu cầu: REQ20241126NO001	CON20241125NO0005	Hoàn tất	26-11-2024
3	Máy cắt CNC Plasma EMC-2000 Mã máy: EMC-2000-003 Mã yêu cầu: REQ20241125NO006	CON20241118NO0003	Hoàn tất	25-11-2024
4	Máy phay giường Vison Wide MS-3116 Mã máy: MP-01-2024-00010 Mã yêu cầu: REQ20241125NO005	CON20241124NO0007	Mới	25-11-2024
5	Máy khoan bắn taro WDDM ZS4125D Mã máy: ZS4125D-005 Mã yêu cầu: REQ20241125NO004	CON20241118NO0004	Mới	25-11-2024

Figure 360: Check request list page

#### 3.4.4 Customer clicks on "Tạo yêu cầu", then selects the machine in specific contract that they want to send check request, provides note and click "Tạo".

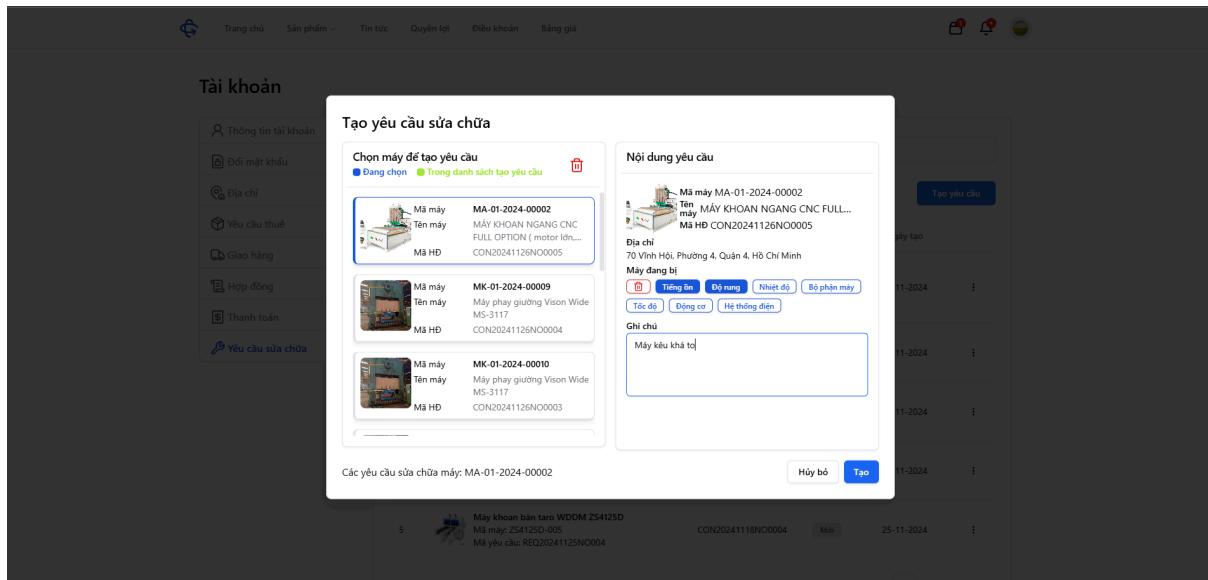


Figure 361: Create new check request

**3.4.5 After creating, the manager will log in to the website with his account and will receive information about the customer's repair request.**

The screenshot shows the Manager home page with a sidebar menu and a main dashboard area. The sidebar includes links for Trang chủ, Tài khoản, Công việc kiểm tra, Hóa đơn, Hợp đồng, Yêu cầu kiểm tra, Vận chuyển, Lịch làm việc, Đơn hàng, and Gói thành viên. The main area displays three boxes: Số lượng máy móc (16), Số đơn hàng (17), and Số hợp đồng (40). To the right, a detailed view of a repair request is shown for a machine (Máy khoan bắn taro WDDM ZS4125D) with model number ZS4125D-005, serial number CON20241118N0004, and date 25-11-2024. The request status is 'Đang chờ' (Pending). A dropdown menu shows other inspection requests and delivery status updates.

Figure 362: Manager home page

**3.4.6 Selecting the repair request notification, the manager will see the content of the inspection request.**

The screenshot shows the MMRMS application interface. On the left is a sidebar with navigation links: Trang chủ, Tài khoản, Công việc kiểm tra, Hoá đơn, Hợp đồng, Yêu cầu kiểm tra, Vận chuyển, Lịch làm việc, Đơn hàng, and Gói thành viên. The main content area is titled 'DANH SÁCH CÁC YÊU CẦU KIỂM TRA/SỬA CHỮA' (List of inspection and repair requests). A modal window titled 'Nội dung chi tiết' (Detail content) is displayed, showing information for a specific request. The modal includes sections for 'Thông tin khách hàng' (Customer information), 'Thông tin yêu cầu kiểm tra' (Inspection request information), 'Ghi chú' (Notes), 'Phóng đoán' (Prediction), and a summary section. The main list on the right shows multiple entries with columns for Ngày tạo (Created date), Tình trạng (Status), and Chi tiết (Details).

Figure 363: Check request detail

**3.4.7 After viewing, the Manager will select the "Công việc kiểm tra" section to start creating a machine inspection task.**

The screenshot shows the 'Danh sách công việc' (Job list) page. The sidebar on the left is identical to Figure 363. The main content area is titled 'DANH SÁCH CÔNG VIỆC' (List of jobs). It features a search bar and filters for 'Trạng thái' (Status), 'Nhân viên' (Staff), and 'Lọc nhân viên' (Filter staff). Below the filters is a section for selecting job types: 'Đã thực hiện' (Completed), 'Chưa thực hiện công việc' (Not yet performed), and 'Đang thực hiện' (In progress). The main list displays three inspection tasks:

- MT23 - KIỂM TRA MÁY THUÊ THEO YÊU CẦU  
REQ20241126NO002
- MT22 - KIỂM TRA MÁY HẾT HẠN HỢP ĐỒNG  
CON20241118NO004
- MT21 - KIỂM TRA MÁY THUÊ THEO YÊU CẦU  
REQ20241114NO005

Each task entry includes columns for 'Nhân viên thực hiện' (Responsible staff), 'Ngày giao công việc' (Work delivery date), and 'Người tạo' (Creator).

Figure 364: Check request list page

**3.4.8 Manager click "Tạo mới công việc" to start creating a job and select the job type as "Kiểm tra máy thuê" and click on "Tiếp tục".**

Figure 365: Task type step

#### 3.4.9 Manager selects the machine check request, enter note in “Ghi chú” then clicks on “Tiếp tục”

Figure 366: Task information step

#### 3.4.10 Manager select start date at “Ngày bắt đầu” and assign technical staff by clicks on “Nhân viên”, then clicks on “Tạo mới công việc”.

←

### Tạo mới công việc

1 Loại công việc → 2 Thông tin công việc → 3 Chọn nhân viên

Ngày bắt đầu \*: 2024-11-29

Tên nhân viên thực hiện \*: Đinh Hoàng Thái - 0 nhiệm vụ

Today Back Next

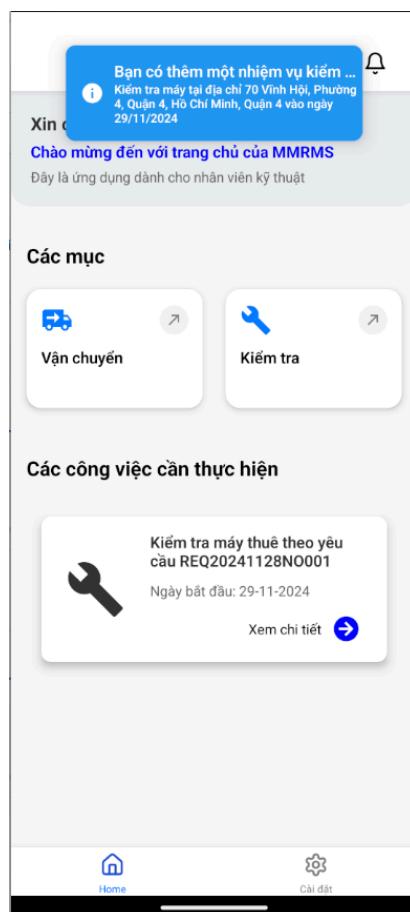
Sun	Mon	Tue	Wed	Thu	Fri	Sat
27	28	29	30	31	01	02
03	04	05	06	07	08	09
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

Quay lại Tạo mới công việc

[< Thoát]

*Figure 367: Assign staff step*

**3.4.11 After creation, the technical staff assigned to the job will receive a notification about a job to check the machine.**

*Figure 368: Technical staff home screen*

**3.4.12 The technician will select the newly assigned check job and view the information.**

← Thông tin kiểm tra □

**Kiểm tra máy thuê theo yêu cầu REQ20241128NO001** ⓘ

Người giao công việc :	Hoàng Minh
Người nhận công việc :	Đinh Hoàng Thái
Loại công việc :	Kiểm tra máy thuê
Ngày tạo công việc :	28-11-2024
Ngày bắt đầu :	29-11-2024
Trạng thái	Chưa xử lý

**THÔNG TIN KHÁCH HÀNG**

👤	Trịnh Trần Tuấn Phương
📞	0123123122
📝	CON20241126NO0005
⚙️	Máy: MÁY KHOAN NGANG CNC FULL OPTION ( motor lớn, trục Z servor, khoan sâu 90mm )
⚙️	Mã máy: MA-01-2024-00002
📍	Địa chỉ giao hàng: 70 Vĩnh Hội, Phường 4, Quận 4, Hồ Chí Minh

**Ghi chú của quản lý**  
Kiểm tra máy cho khách

**Ghi chú của khách hàng**  
Máy kêu khá to

**Phóng đoán của khách**

Figure 369: Task detail screen

**3.4.13 If there is a component that needs to be replaced so the machine can operate normally, the technician will select the "Tạo ticket sửa" button to create a ticket and create an invoice for the customer to pay.**

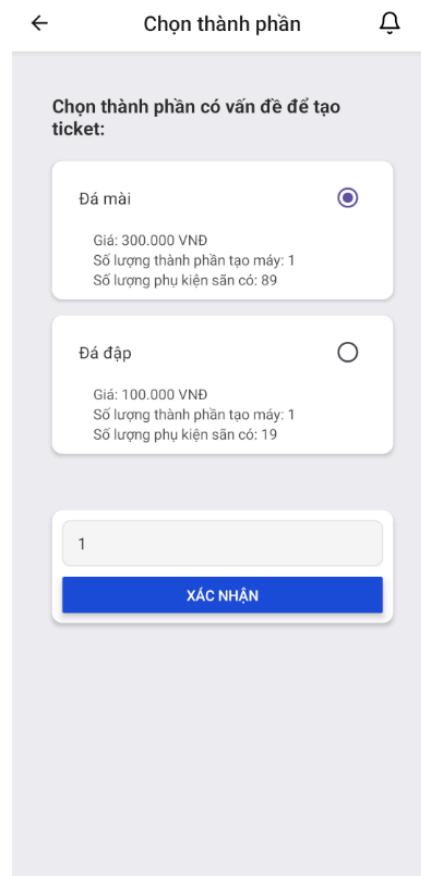


Figure 370: Replace component screen

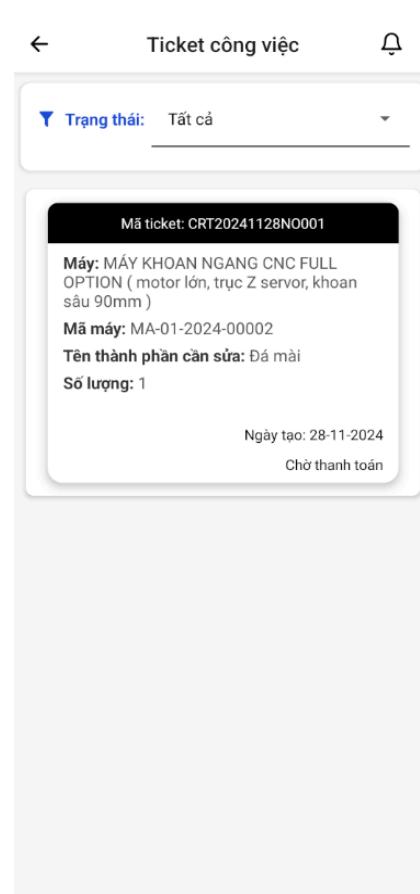


Figure 371: Component replacement ticket screen

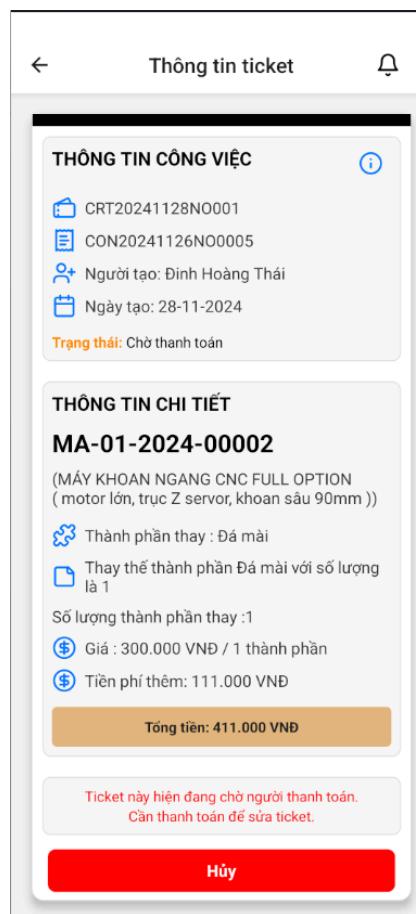


Figure 372: Component replacement ticket detail screen

Figure 373: Invoice detail page

**3.4.14 At this time, the customer will make payment and after payment, the technical staff will begin repairing.**

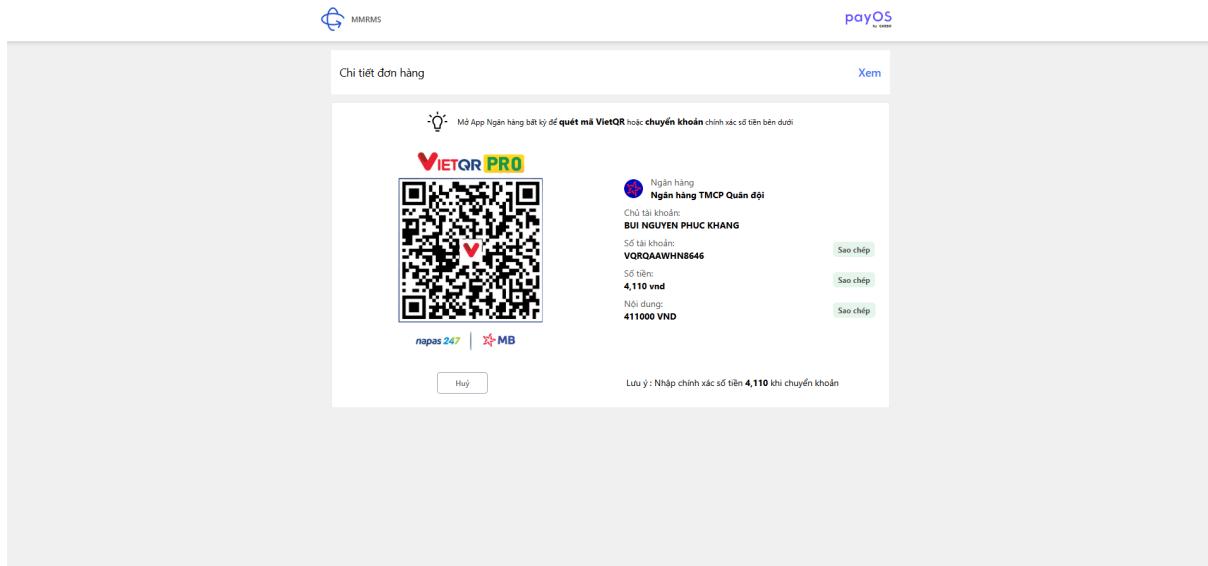


Figure 374: Check out page

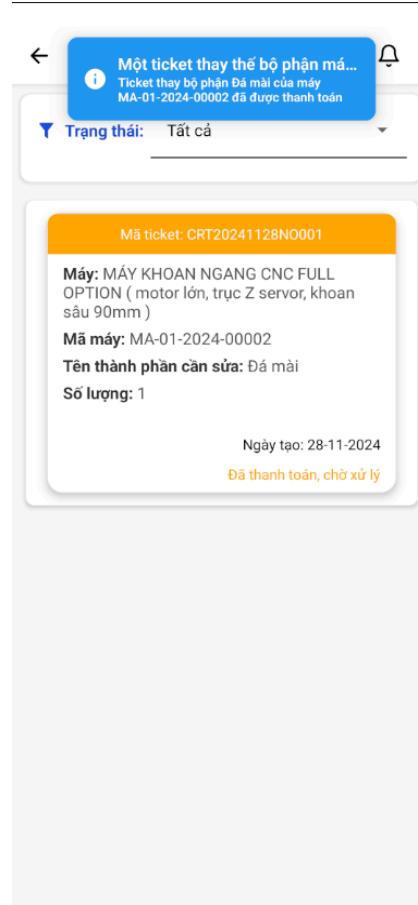


Figure 375: Payment success

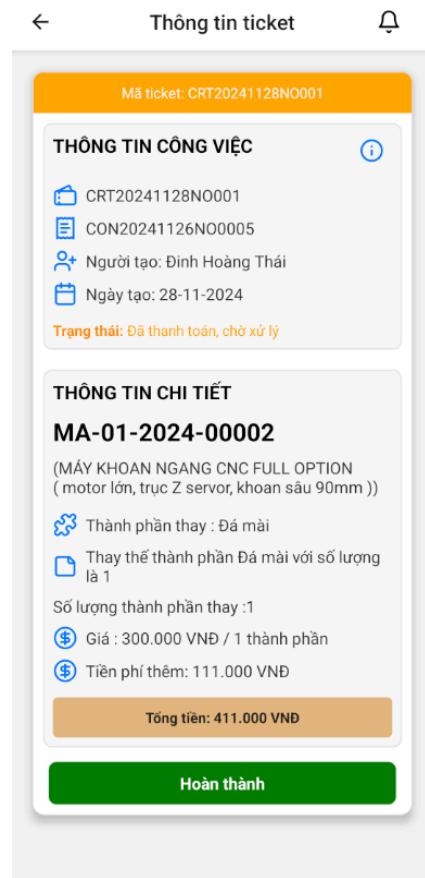
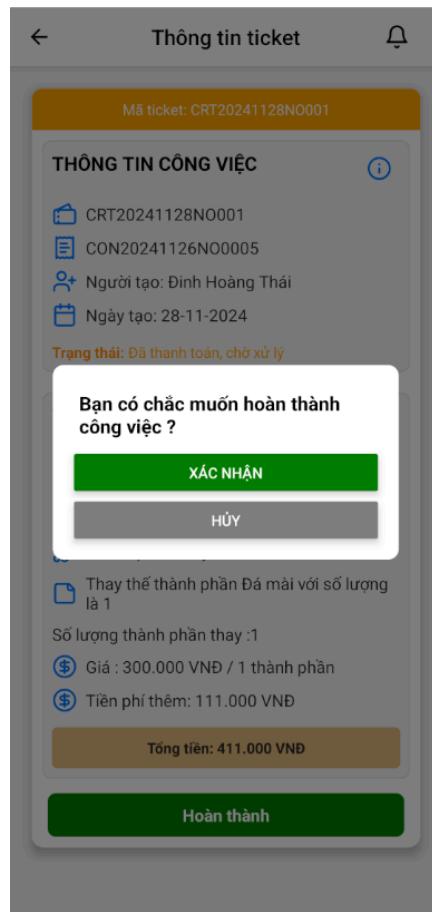
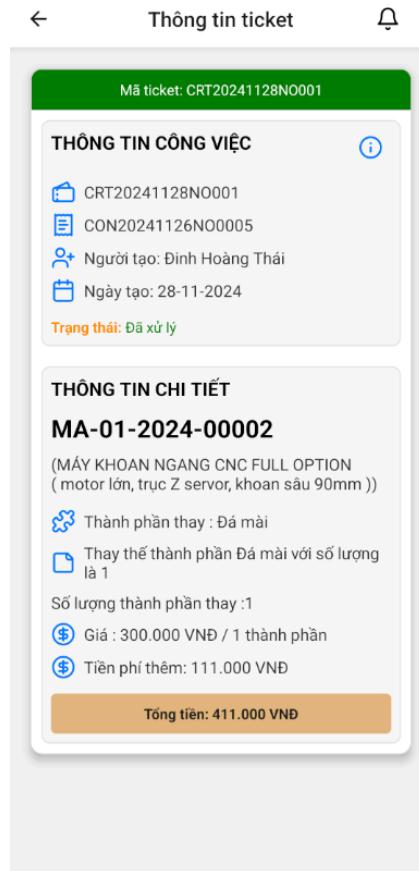


Figure 376: Ticket information screen

**3.4.15 After completing the repair, the technical staff will complete the ticket.**



*Figure 377: Complete ticket confirmation screen**Figure 378: Complete ticket screen*

**3.4.16 After completing all tickets, the technical staff will complete the machine inspection.**

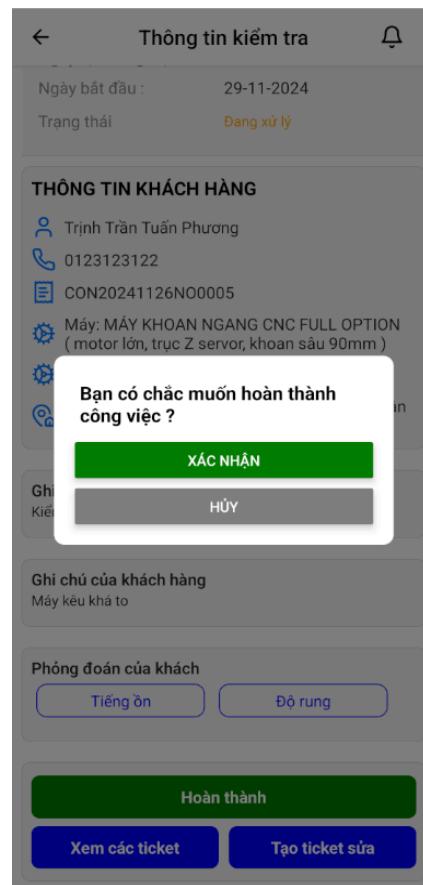


Figure 379: Complete task confirmation screen

**Kiểm tra máy thuê theo yêu cầu** REQ20241128NO001

Người giao công việc : Hoàng Minh  
 Người nhận công việc : Đinh Hoàng Thái  
 Loại công việc : Kiểm tra máy thuê  
 Ngày tạo công việc : 28-11-2024  
 Ngày bắt đầu : 29-11-2024  
 Ngày hoàn thành : 28-11-2024  
 Trạng thái : **Đã xử lý**

**THÔNG TIN KHÁCH HÀNG**

- Trịnh Trần Tuấn Phương
- 0123123122
- CON20241126NO0005
- Máy: MÁY KHOAN NGANG CNC FULL OPTION  
( motor lớn, trục Z servor, khoan sâu 90mm )
- Mã máy: MA-01-2024-00002
- Địa chỉ giao hàng: 70 VĨNH HỘI, PHƯỜNG 4, QUẬN 4, HỒ CHÍ MINH

**Ghi chú của quản lý**  
Kiểm tra máy cho khách

**Ghi chú của khách hàng**  
Máy kêu khá to

Figure 380: Complete task screen

**3.4.17 After completing the job, the customer and manager will receive information that the inspection request has been completed.**

**Yêu cầu** REQ20241128NO001

Ngày tạo: 28-11-2024

**Nội dung**

Mã hợp đồng	: CON20241126NO0005	Ghi chú
Mã máy	: MA-01-2024-00002	Máy kêu khá to
Địa chỉ	: 70 VĨNH HỘI, PHƯỜNG 4, QUẬN 4, HỒ CHÍ MINH	
Máy đang bị	: Tiếng ồn, Độ rung	

**Thay thế bộ phận**

Mã ticket	CRT20241128NO001
Trạng thái	<b>Đã sửa xong</b>
Bộ phận thay thế	Đá mài x1
Tiền sửa chữa	411,000 đ
Ngày tạo	28-11-2024

Figure 381: Check request detail page

Thông tin công việc  
MT24 - Kiểm tra máy thuê theo yêu cầu REQ20241128NO001  
Trạng thái: Đã xử lý  
Người nhận công việc: Đinh Hoàng Thái  
Ngày tạo công việc: 28-11-2024  
Ngày thực hiện: 29-11-2024  
Ngày hoàn thành: 28-11-2024  
Người giao: Hoàng Minh  
Loại công việc: Công việc kiểm tra máy  
Ngày thực hiện: 29-11-2024  
Nguyễn Văn Hùng  
Khách hàng đã ký tất cả hợp đồng  
Khách hàng Trịnh Trần Tuấn Phương đã ký tất cả hợp đồng cho yêu cầu thuê REH20241128NO002.  
Khách hàng đã kết thúc hợp đồng  
Khách hàng đã kết thúc hợp đồng CON20241128NO003.  
Yêu cầu kiểm tra máy đã được khách hủy  
Yêu cầu kiểm tra máy của hợp đồng CON20241128NO004 tại Văn phòng Đại học FPT, 590 Cách Mạng Tháng 8, Phường 11, Quận 3, Hồ Chí Minh, Quận 3 đã được khách hủy.

Figure 382: Task detail page

### 3.5 Extend and End Contract

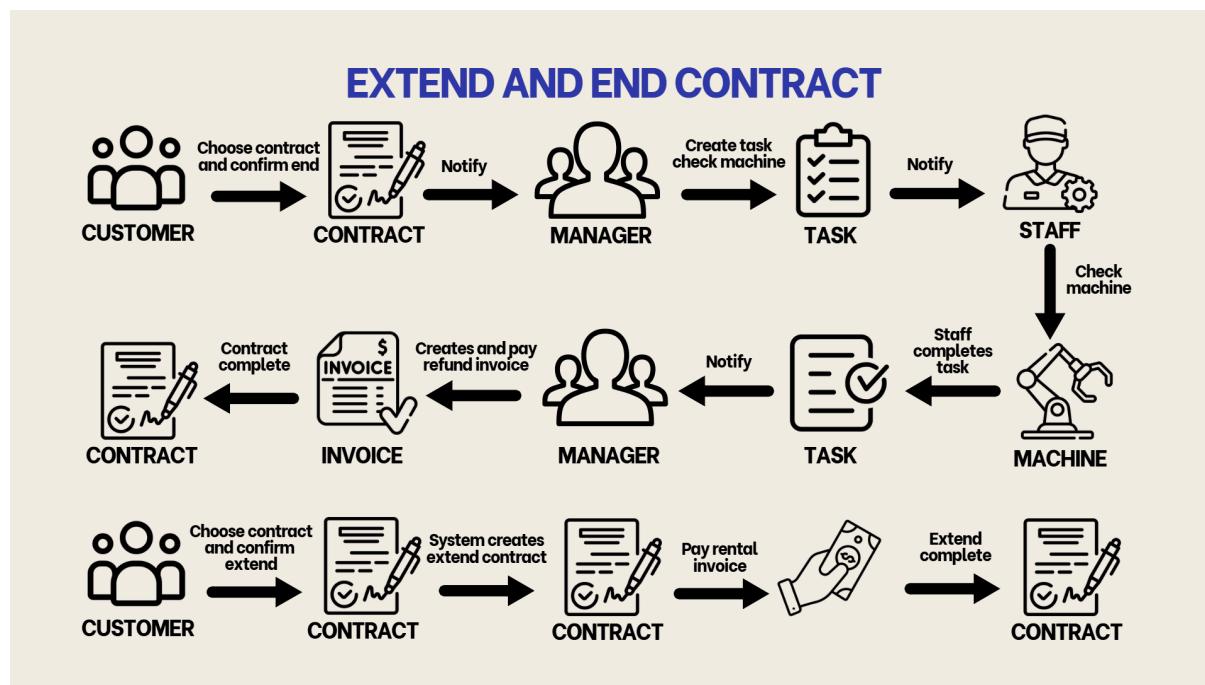


Figure 383: Extend and End Contract workflow

#### A. End Contract

##### 3.5.1 Customer end contract

- Customer navigate to contract list, select contract they want to end, then choose option “Hủy hợp đồng”.

STT	Loại máy	Tiền thuê/Ngày	Trạng thái	Ngày bắt đầu	Ngày kết thúc
21	MÁY KHOAN NGANG CNC FULL OPTION ( motor lõm, trục Z server, khoan sâu 90mm ) Máy mài: MA-01-2024-00003 Mã HD: CON20241124NO0003	5.000.000 đ	Đang được thuê	12-12-2024	12-03-2025
22	Máy khoan bắn taro WDDM ZS4125D Máy mài: ZS4125D-004 Mã HD: CON20241119NO0002	174.420 đ	Đang giao	02-12-2024	02-03-2025
23	Máy khoan bắn taro WDDM ZS4125D Máy mài: ZS4125D-005 Mã HD: CON20241118NO0004	400.000 đ	Đợi hoàn tiền	27-11-2024	26-11-2024
24	Máy cắt CNC Plasma EMC-2000 Máy mài: EMC-2000-003 Mã HD: CON20241118NO0003	600.000 đ	Đợi kiểm tra	28-11-2024	27-11-2024
25	Máy cắt CNC Plasma EMC-2000 Máy mài: EMC-2000-002 Mã HD: CON20241118NO0002	600.000 đ	Đang được thuê	28-11-2024	28-04-2025

Figure 384: Contract list page

2. Customer clicks on “Đồng ý” to confirm the end of the contract.

Bạn có chắc không ?

Lựa chọn đồng ý sẽ hủy hợp đồng đang chọn hiện tại

Figure 385: Confirm end contract modal

### 3.5.2 Manager create task to check machine

1. Manager navigates to “Công việc kiểm tra”, clicks on “Tạo mới công việc”.

The screenshot shows the 'DANH SÁCH CÔNG VIỆC' (Task List) page. The left sidebar has a 'Công việc kiểm tra' (Inspection Task) button highlighted in blue. The main area displays two completed tasks:

- Công việc kiểm tra máy** (Machine Inspection Task)
- MT26 - STRING**
- Nhân viên thực hiện**: Trần Phước Khoa
- Ngày giao công việc**: 30-11-2024
- Người tạo**: Hoàng Minh

Below this, another task is listed with similar details.

Figure 386: Task list page

2. Manager select task type is “Kiểm tra máy hết hạn hợp đồng”.

The screenshot shows the 'Tạo mới công việc' (Create New Task) step. The left sidebar has a 'Công việc kiểm tra' (Inspection Task) button highlighted in blue. The main area shows the following steps:

- ① Loại công việc → ② Thông tin công việc → ③ Chọn nhân viên

A note says: "Vui lòng chọn loại công việc" (Please select the task type). Two options are shown:

- Kiểm tra máy thuê** (Machine inspection currently has 2 tasks pending creation)
- Kiểm tra máy hết hạn hợp đồng** (Machine inspection due to expiration currently has 7 tasks pending creation)

A 'Tiếp tục' (Continue) button is at the bottom right.

Figure 387: Task type step

3. Manager selects the contract and enters a note.

Thông tin công việc

**Hợp đồng thanh lý \***

CON20241118NO0002

**Nội dung công việc \***

Kiểm tra máy hết hạn hợp đồng CON20241118NO0002

**Ghi chú \***

Kiểm tra máy

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM  
Độc lập – Tự do – Hạnh phúc  
... 00 ...

**HỢP ĐỒNG**  
(V/V: Thuê máy móc, thiết bị)  
Hợp đồng số CON20241118NO0002

- Căn cứ Bộ luật Dân sự số 91/2015/QH111 số 33/2005/QH11, ngày 14/06/2005;
- Căn cứ Luật Thương Mại số 36/2005/QH11, ngày 14/06/2005;
- Căn cứ Thông tư số 45/2013/TT-BTC của Bộ Tài Chính về "Hướng dẫn chế độ quản lý, sử dụng và trích khấu hao máy"

Figure 388: Task detail step

4. Manager select start date at “Ngày bắt đầu” and assign technical staff by clicks on “Nhân viên”, then clicks on “Tạo mới công việc”.

Thông tin công việc

**Ngày bắt đầu \***

2024-12-02

**Tên nhân viên thực hiện \***

KhoaTechStaff - 1 nhiệm vụ

Sun	Mon	Tue	Wed	Thu	Fri	Sat
27	28	29	30	31	01	02
03	04	05	06	07	08	09
10	11	12	13	14	15	16
17	18	19	20	21	22	23

Figure 389: Assign staff step

5. Manager view task details.

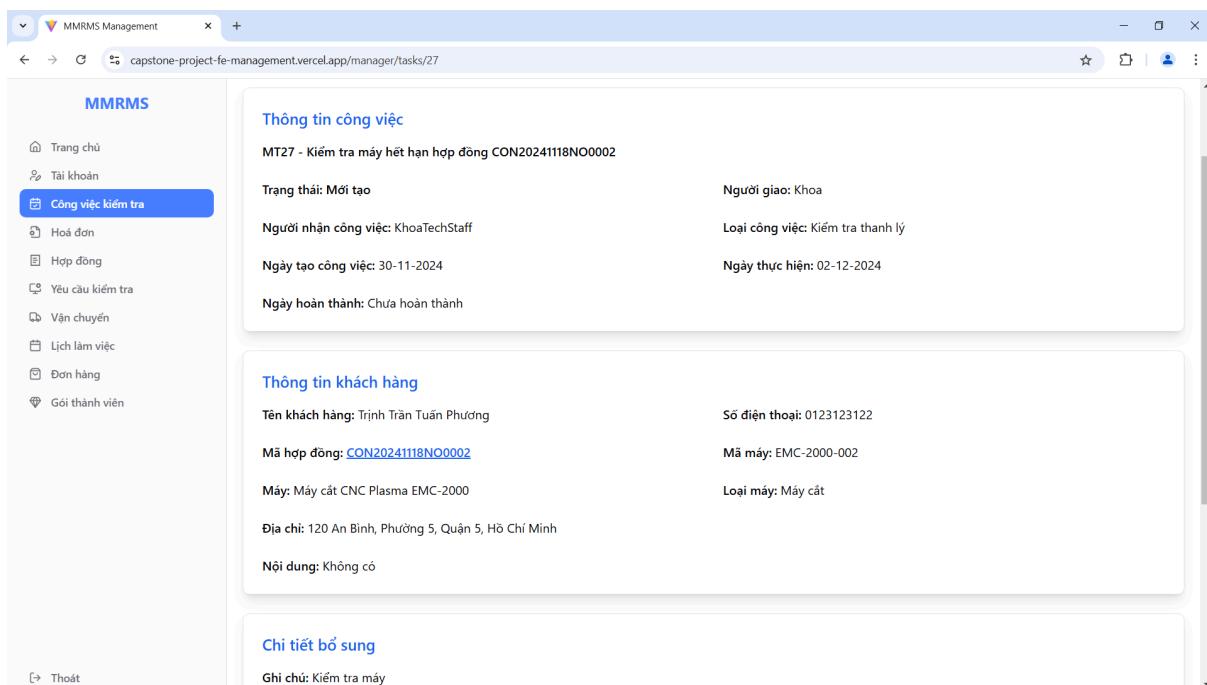


Figure 390: Task detail page

### 3.5.3 Technical staff check machine

1. Technical staff view task details.



Figure 391: Task detail screen

2. After checking the machine, technical staff clicks on “Hoàn thành” to complete the task.

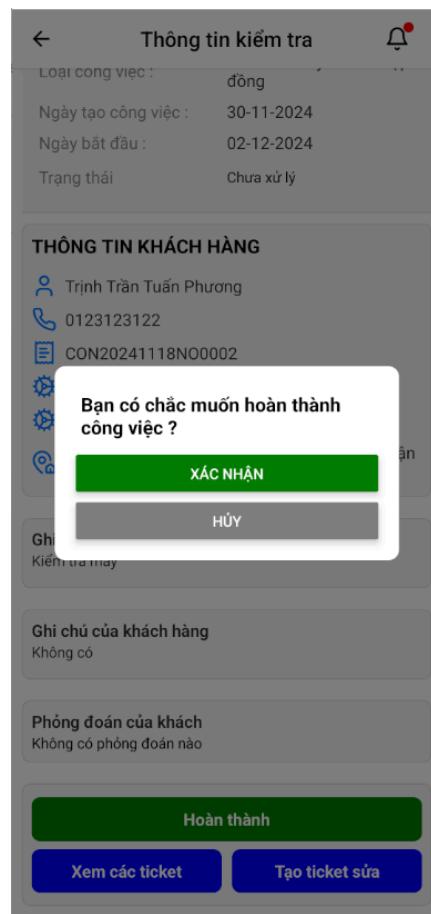


Figure 392: Task detail screen

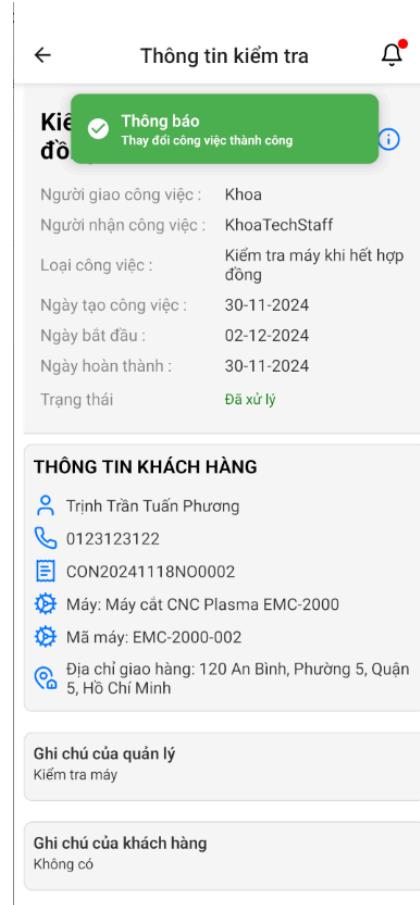


Figure 393: Task detail screen

### 3.5.4 Manager create refund invoice

- After technical staff complete task, manager navigate to contract list, filter contract by clicks on “Chờ thanh lý hợp đồng”, then click on “Thanh lý” option.

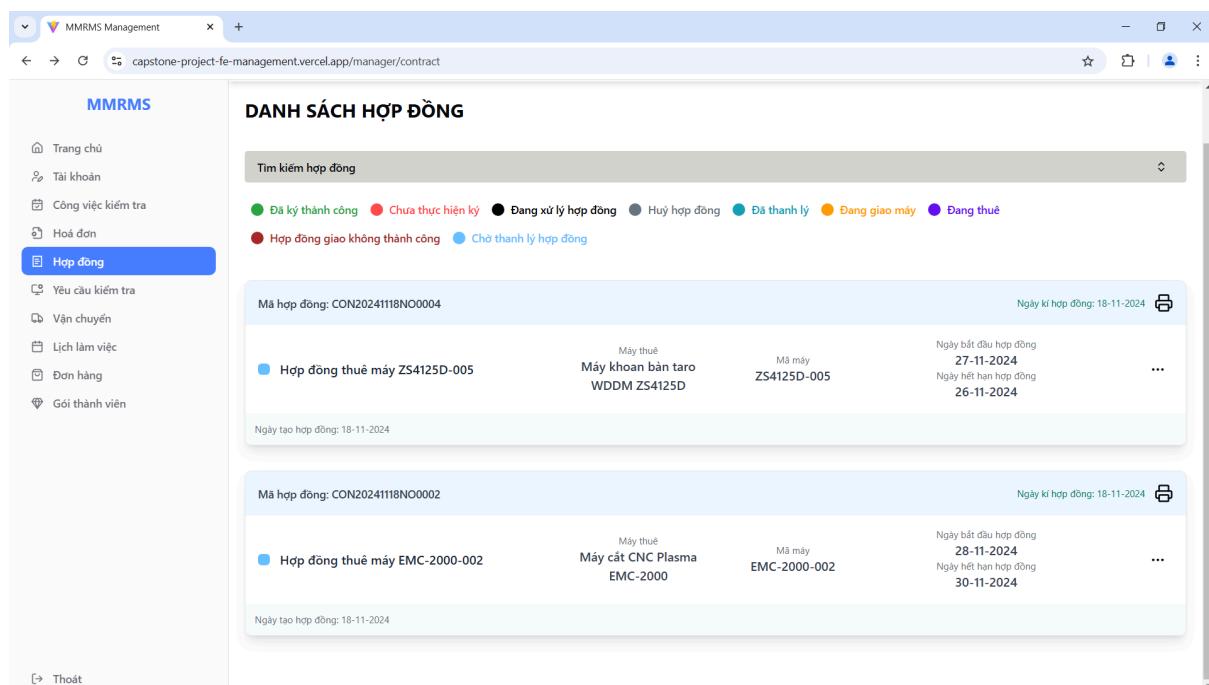


Figure 394: Contract list page

2. Manager view contract information, then click on “Thanh toán tiền đặt cọc”.

The screenshot shows the 'THANH LÝ HỢP ĐỒNG' (Contract Settlement) page. On the left sidebar, 'Hợp đồng' is selected. The main content area displays the details of a contract named 'Hợp đồng thuê máy EMC-2000-002'. It includes sections for 'BÊN THUÊ (BÊN B)' (Lessor), 'THÔNG TIN MÁY MỚC THUÊ' (Leased Equipment Information), and 'THÔNG TIN THANH TOÁN' (Payment Information). The payment section shows 'Tiền thuê 1 ngày: 600.000 đ'. To the right, there are two boxes: 'DANH SÁCH CÁC TICKET ĐƯỢC TẠO' (List of created tickets) and 'DANH SÁCH CÁC KHOẢN PHÍ PHẠT VÀ CHUA THANH TOÁN' (List of fines and unpaid payments).

Figure 395: Contract detail page

3. Manager scans QR code, then click on “Xác nhận thanh toán”.

The screenshot shows the same 'THANH LÝ HỢP ĐỒNG' page. A modal window titled 'Thông Tin Thanh Toán' (Payment Information) is open. It displays a QR code with the text 'VIETQR' and logos for 'napas 247' and 'Vietcombank'. Below the QR code, it shows payment details: 'Tiền cọc ban đầu: 150.000.000 đ', 'Tổng số tiền trả: 150.000.000 đ', and 'Tổng tiền cuối cùng: 150.000.000 đ'. At the bottom of the modal are buttons for 'Xác nhận thanh toán' (Confirm payment) and 'Hủy' (Cancel). The background shows the same contract details as Figure 394.

Figure 396: Invoice information modal

4. Manager view refund invoice detail.

**THÔNG TIN HÓA ĐƠN CHI TIẾT**

Mã hóa đơn INV20241130NO009	Ngày tạo hóa đơn 30-11-2024 09:54:40	Người thanh toán Khoa
Loại hóa đơn Tiền trả cọc	Ngày thanh toán hóa đơn 30-11-2024 09:54:40	Trạng thái thanh toán Đã thanh toán

**Thông Tin Thanh Toán**

No.	Mã máy	Phụ kiện sửa chữa	Giá thay / 1 phụ kiện	Số lượng	Thành tiền	Giá sửa chữa	Tổng phí
Không có chi tiết thanh toán nào							

Hóa đơn hoàn trả tiền đặt cọc cho hợp đồng CON20241118NO0002

Tiền cọc ban đầu :	150.000.000 đ
Tổng tiền sửa chữa :	0 đ
Tổng tiền phải trả cọc :	150.000.000 đ
<b>Tổng tiền cuối cùng :</b>	<b>150.000.000 đ</b>

Mã hợp đồng CON20241118NO0002

Figure 397: Invoice detail page

### 3.5.5 Customer view contract

- After paying the refund invoice successfully, the customer receives notification.

**Tài khoản**

- Thông tin tài khoản
- Đổi mật khẩu
- Địa chỉ
- Yêu cầu thuê
- Giao hàng
- Hợp đồng
- Thanh toán**
- Yêu cầu sửa chữa

**Thanh toán**

STT	Mã thanh toán	Loại	Ngày tạo
1	INV20241130NO009	Tiền hoàn trả	30-11-2024
2	INV20241130NO008	Tiền thuê	30-11-2024
3	INV20241130NO007	Tiền thuê	30-11-2024
4	INV20241128NO005	Tiền sửa chữa	28-11-2024
5	INV20241128NO004	Tiền thuê	28-11-2024

**Notification**

- Hoá đơn hoàn tiền đã được tạo  
Hoá đơn hoàn tiền cho hợp đồng CON20241118NO0002  
đã được tạo.  
30-11-2024 - 09:54:40
- Yêu cầu kiểm tra máy của bạn đã được thay đổi trạng thái  
Yêu cầu số REQ20241125NO004 của máy ZS4125D-005  
đã được đổi thành [Đã giao nhiệm vụ].  
29-11-2024 - 09:16:10
- Yêu cầu kiểm tra máy của bạn đã được thay đổi trạng thái  
Yêu cầu số REQ20241128NO002 của máy MA-01-2024-  
00002 đã được đổi thành [Đã giao nhiệm vụ].  
29-11-2024 - 09:16:10
- Yêu cầu kiểm tra máy của bạn đã được thay đổi trạng thái  
Yêu cầu số REQ20241128NO001 của máy MA-01-2024-  
00001 đã được đổi thành [Đã giao nhiệm vụ].  
29-11-2024 - 09:16:10

Figure 398: Notification

- Customer view contract.

The screenshot shows the 'Contract Detail' page. At the top, it displays the contract number 'Hợp đồng CON20241118NO0002' and a status button 'Đã hoàn tất'. Below this, there are several sections: 'Khách hàng' (Customer) with details like name, phone, company, and email; 'Thông tin ngân hàng' (Bank Information) with account number, bank name, and recipient details; 'Địa chỉ' (Address) with address and coordinates; 'Máy móc' (Machinery) listing a plasma cutter; and 'Lịch sử thanh toán' (Payment History) showing two entries with payment ID, type, status, date range, and total amount.

Figure 399: Contract detail page

## B. Extend Contract

### 3.5.6 Customer extend contract

1. Customer navigate to contract list, select contract they want to extend, then choose option “Gia hạn hợp đồng”.

The screenshot shows the 'Contract List' page. On the left is a sidebar with links: Thông tin tài khoản, Đổi mật khẩu, Địa chỉ, Yêu cầu thuê, Giao hàng, Hợp đồng (selected), Thanh toán, and Yêu cầu sửa chữa. The main area lists contracts with columns: STT, Loại máy, Tiền thuê/Ngày, Trạng thái, Ngày bắt đầu, and Ngày kết thúc. The first contract (STT 21) has a tooltip 'Đang được thuê' over its status. A context menu is open for this row, showing options: Xem chi tiết, Xem HD PDF, Gia hạn hợp đồng, and Hủy hợp đồng. The menu is currently hovering over 'Gia hạn hợp đồng'.

Figure 400: Contract list page

2. Customer selects extended date for base contract.

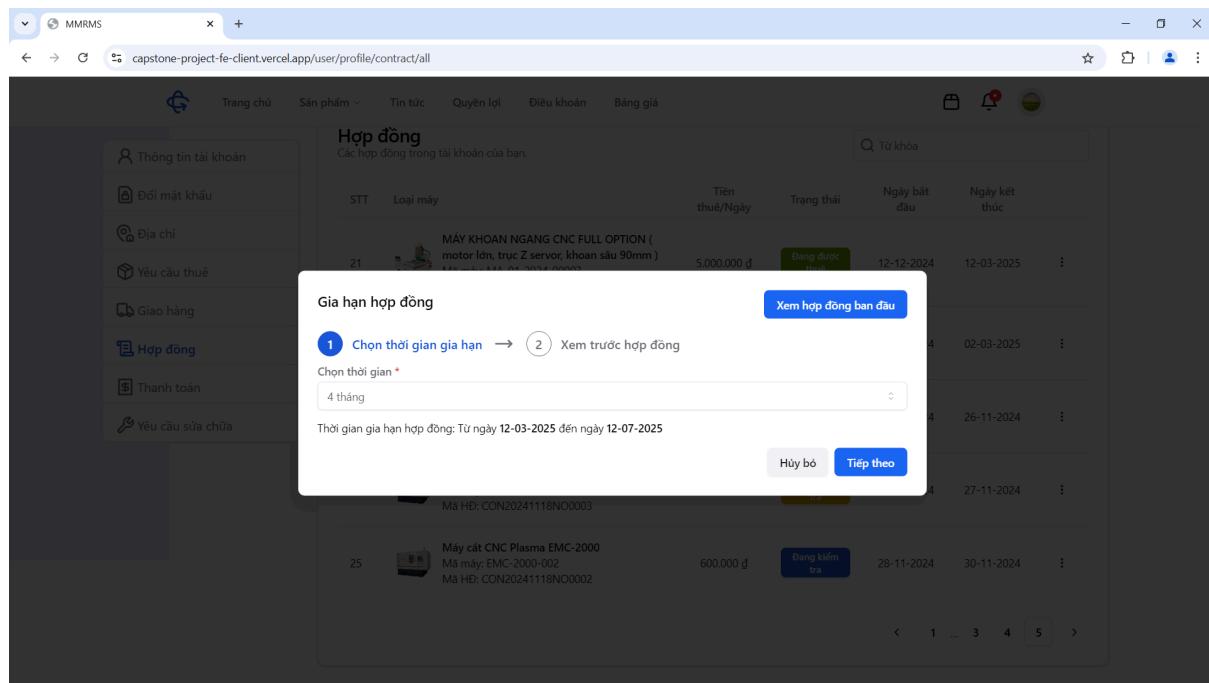


Figure 401: Extend contract modal

3. Customer reviews extend the contract, then click on “Gia hạn”.

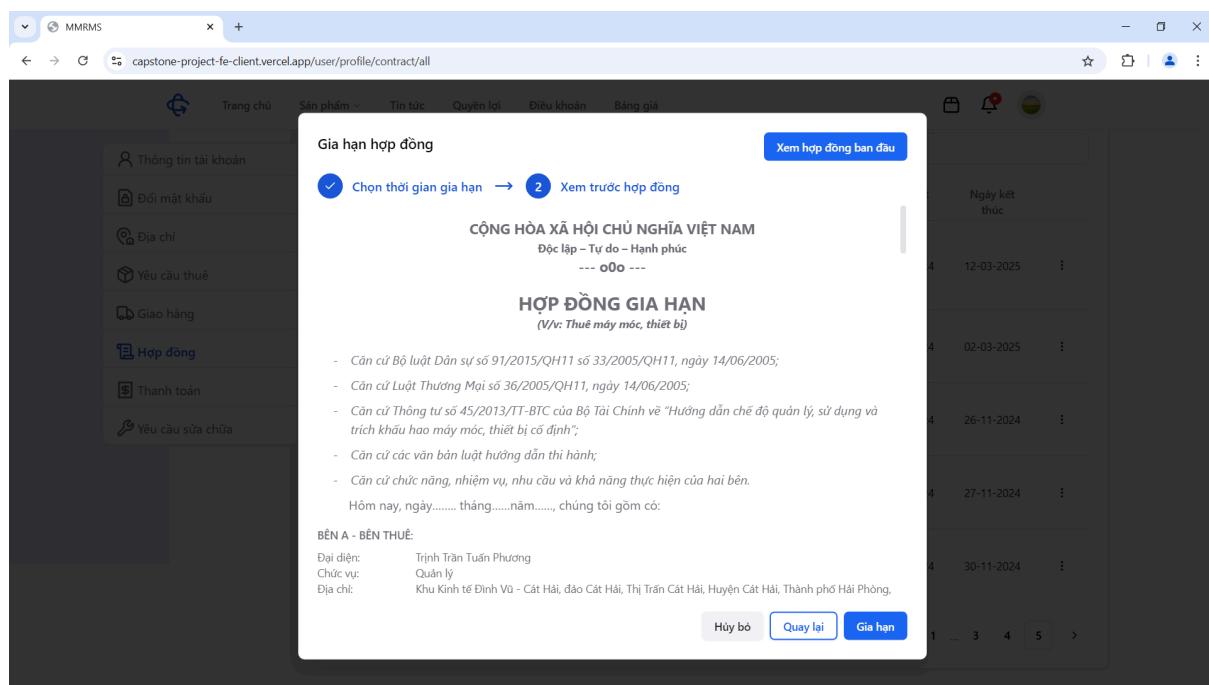


Figure 402: Extend contract modal

4. Customer views the extended contract details.

The screenshot shows the 'Hợp đồng CON20241130NO0006' (Contract CON20241130NO0006) details. It includes sections for 'Khách hàng' (Customer), 'Thông tin ngân hàng' (Bank information), 'Máy móc' (Equipment), and 'Địa chỉ' (Address). The 'Lịch sử thanh toán' (Payment history) section shows a single entry for payment number INV20241130NO008.

Khách hàng		Thông tin ngân hàng	
Tên người đặt	Trịnh Trần Tuấn Phương	Số tài khoản	82028493
Số điện thoại	0123123122	Tên ngân hàng	Ngân hàng TMCP Á Châu (ACB)
Tên công ty	CÔNG TY CỔ PHẦN SẢN XUẤT VÀ KINH DOANH VINFAST	Tên người nhận	TRINH TRAN TUAN PHUONG
Email	nguyen123@gmail.com		

Máy móc		Lịch sử thanh toán	
Loại máy	MÁY KHOAN NGANG CNC FULL OPTION ( motor lớn, trục Z server, khoan sâu 90mm )	Tiền thuê/Ngày	5.000.000 đ
	Mã máy: MA-01-2024-00003		

Figure 403: Contract detail page

### 5. Customer view rental invoice of extended contract and pay invoice.

The screenshot shows the 'Thanh toán INV20241130NO008' (Invoice INV20241130NO008) details. It includes sections for 'Nội dung thanh toán' (Payment content) and 'Thông tin thanh toán' (Payment information). The total amount is listed as 615.000.000 đ.

Nội dung thanh toán		Thông tin thanh toán	
Thanh toán INV20241130NO008		Thống kê	
Ngày tạo:	30-11-2024	Ngày hết hạn:	12-03-2025
Loại giao dịch	Tiền thuê		
Thời gian áp dụng (123 ngày)	Từ 12-03-2025 đến 12-07-2025		
Tổng số tiền	615.000.000 đ		
Mã giao dịch	Chưa thanh toán		
Loại giao dịch	Chưa thanh toán		
Ngày thanh toán	Chưa thanh toán		

Figure 404: Invoice detail page

### 3. Select “Thanh toán” and check out.

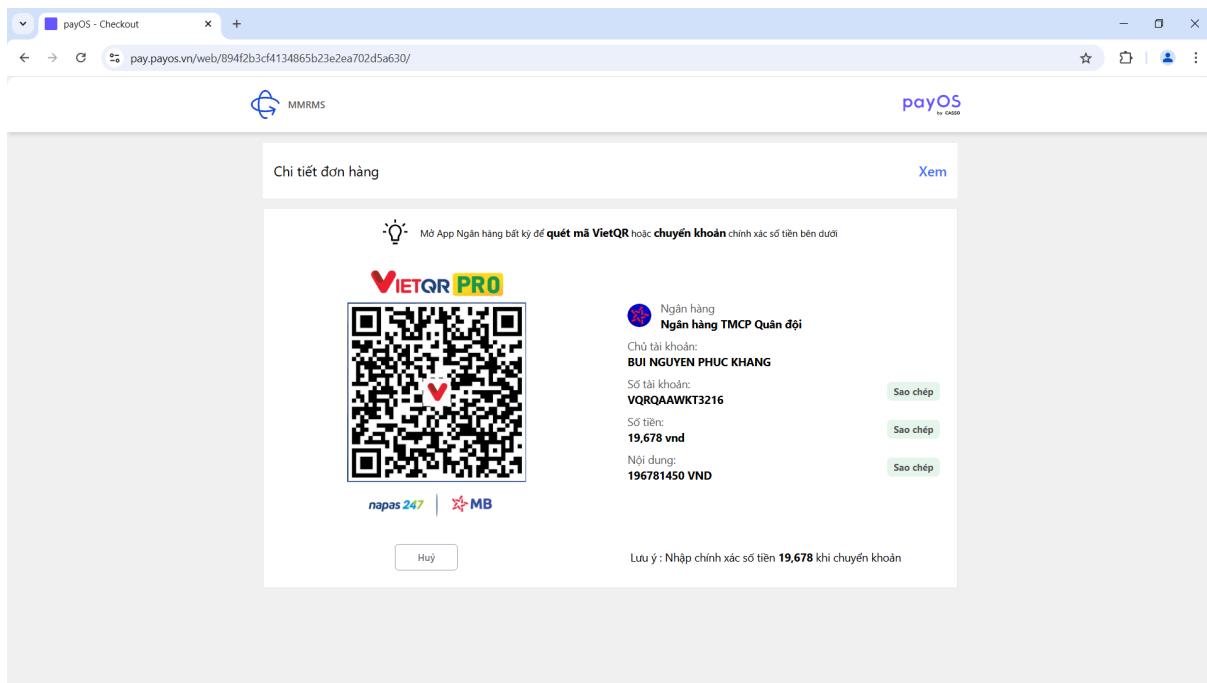


Figure 405: Payment page

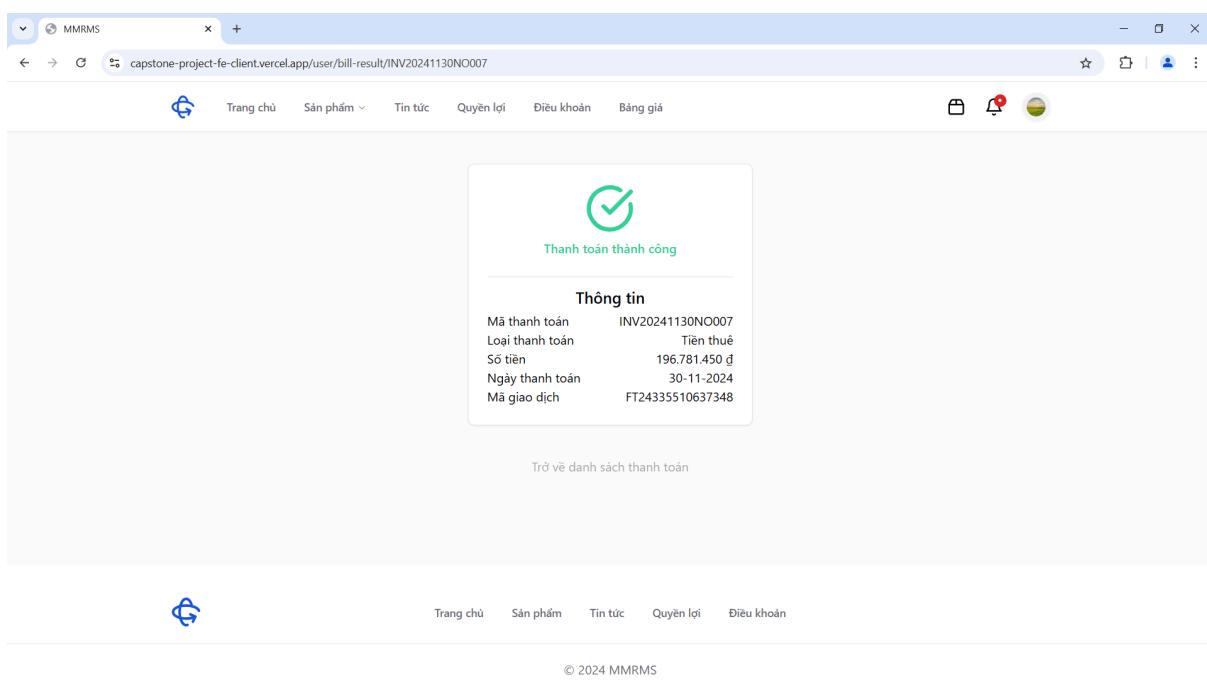


Figure 406: Payment success

## Appendix

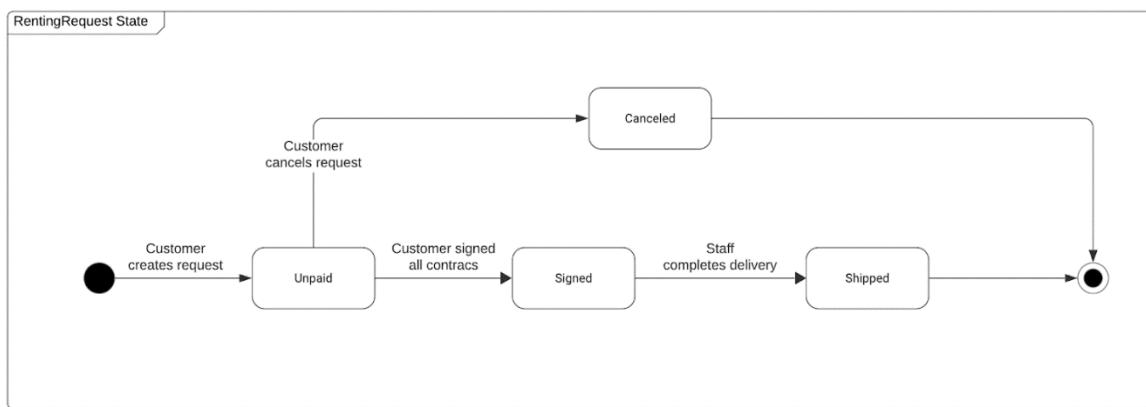


Figure 407: State Diagram of Renting Request

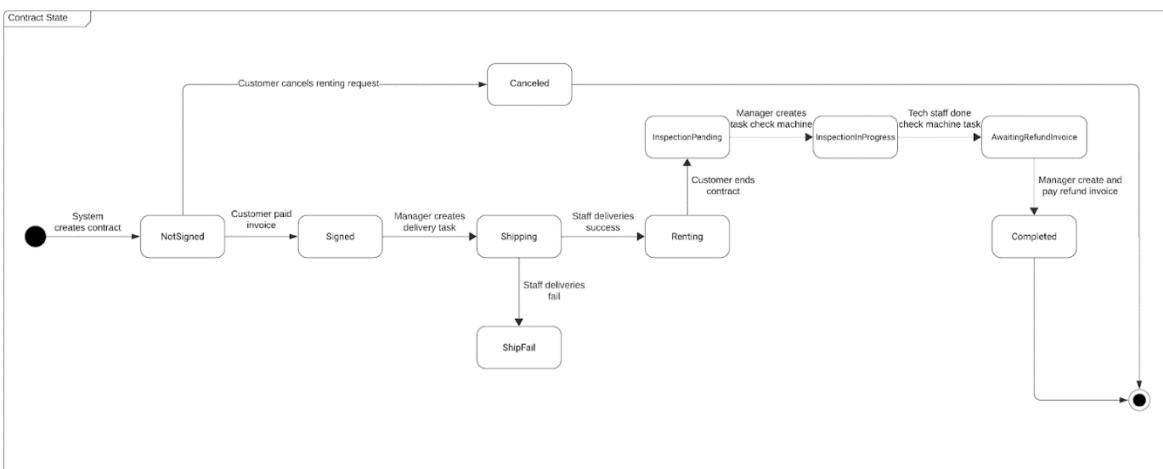


Figure 408: State Diagram of Contract

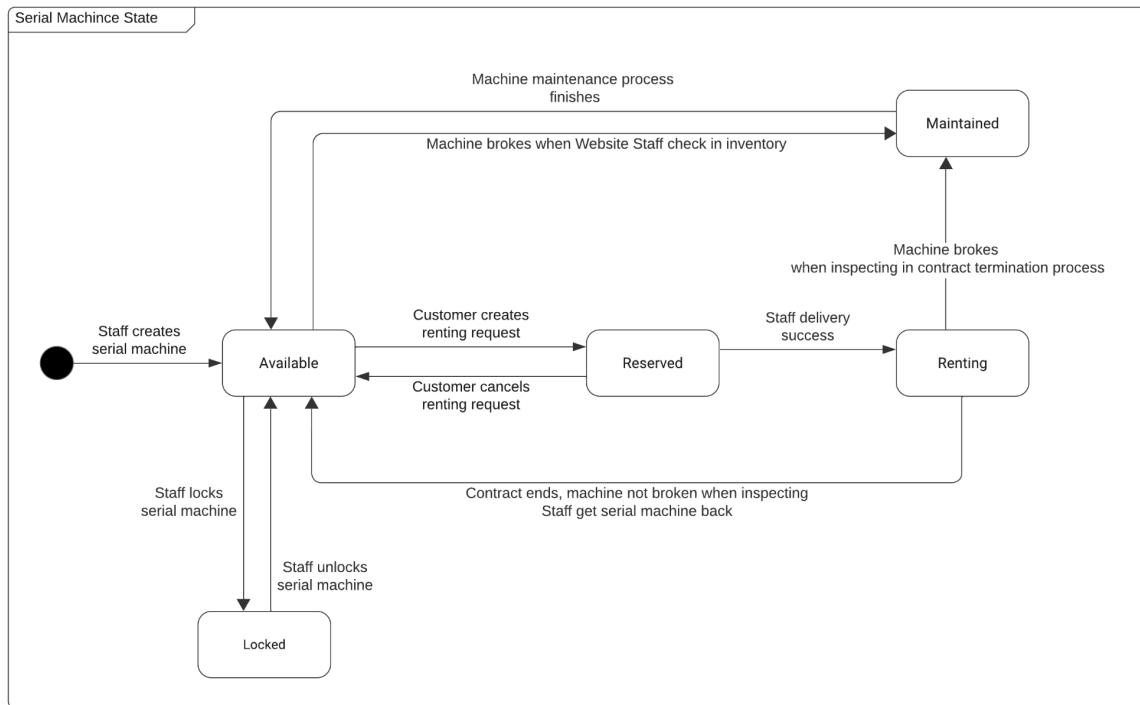


Figure 409: State Diagram of Serial Machine

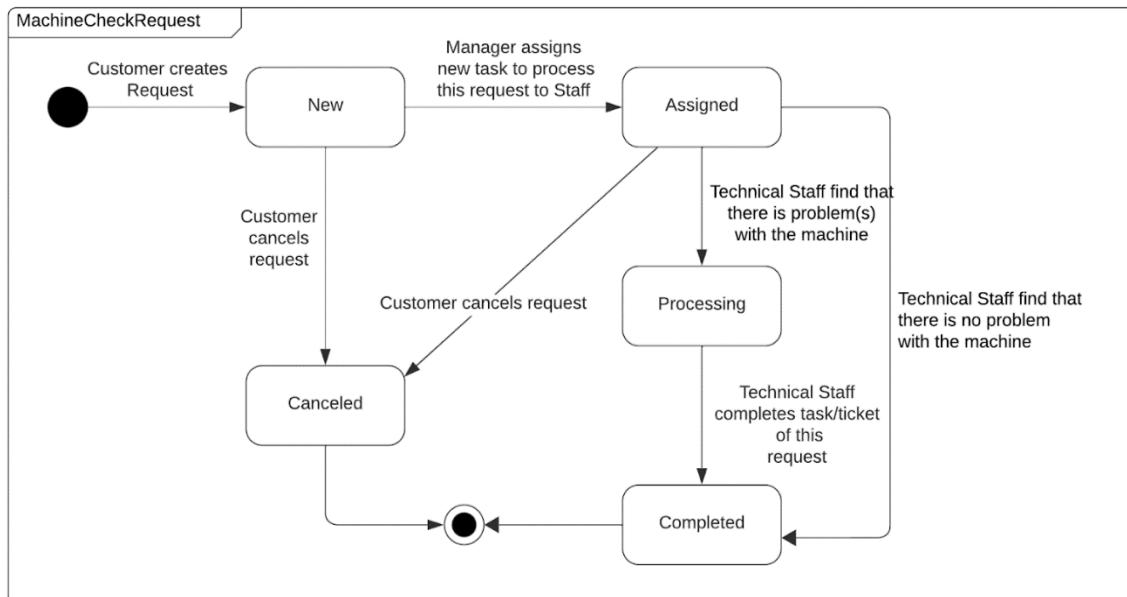


Figure 410: State Diagram of Machine Check Request

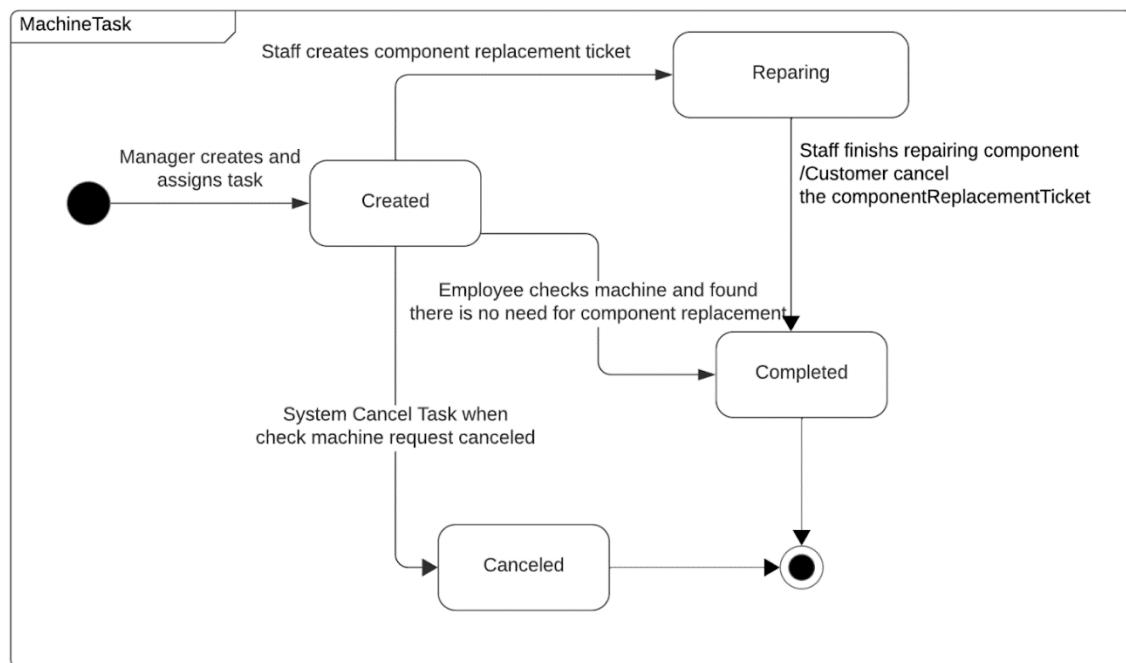


Figure 411: State Diagram of Machine Task

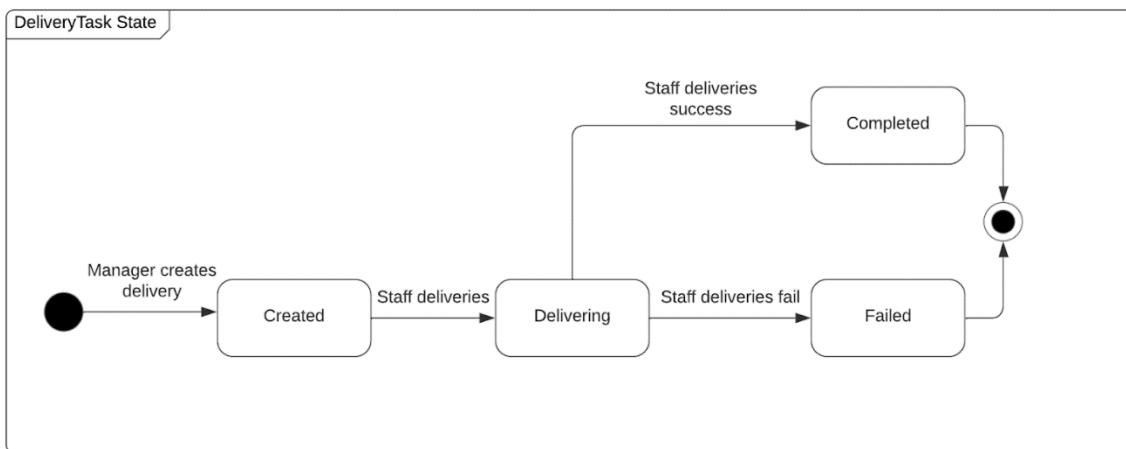


Figure 412: State Diagram of Delivery Task

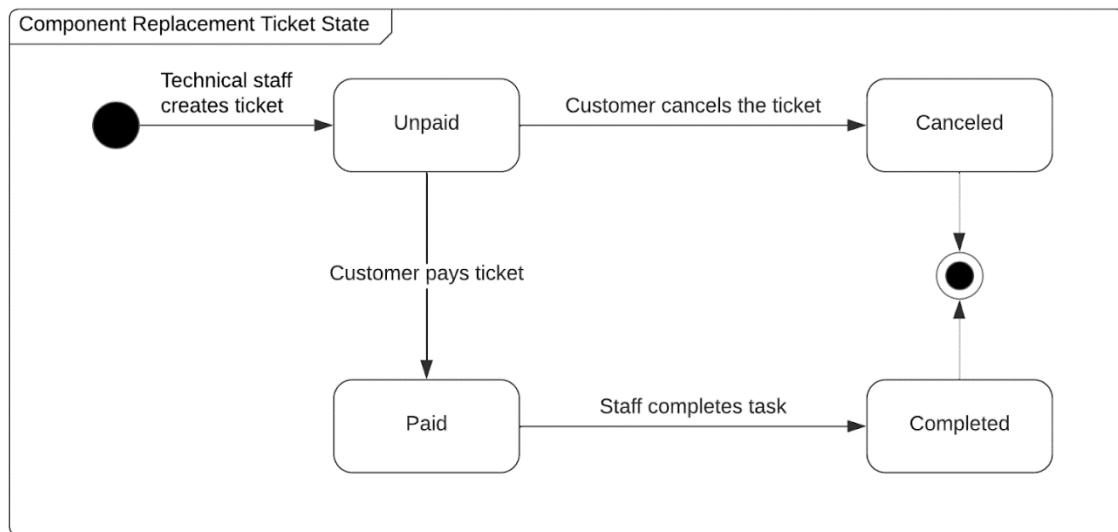


Figure 413: State Diagram of Component Replacement Ticket