

# Product-Vision Document

- 1. Introduction
- 2. Positioning
  - 2.1. Problem Statement
  - 2.2. Product Position Statement
- 3. Stakeholder and User Descriptions
  - 3.1. Stakeholder Summary
  - 3.2. User Summary
  - 3.3. User Environment
  - 3.4. Key Stakeholder or User Needs
  - 3.5. Alternatives and Competition
- 4. Product Overview
  - 4.1. Product Perspective
  - 4.2. Assumptions and Dependencies
- 5. Product Features
  - Core Functionalities:
  - Additional Features:
  - Future Enhancements:
- 6. Other Product Requirements
  - Standards, Hardware, or Platform Requirements
  - Performance Requirements
  - Environmental Requirements
  - Quality Attributes
  - Design and External Constraints
  - Documentation Requirements
  - Priority of Requirements

## 1. Introduction

This Vision Document outlines the strategic framework and operational blueprint for the Rently System, an innovative solution designed to revolutionize condominium management. Addressing the critical gap in current management practices, the Rently System integrates property and user profiles, financial records, facility reservations, service requests, and notifications into a single, user-friendly platform. By providing real-time updates and comprehensive management capabilities, it aims to significantly enhance efficiency, accuracy, and user satisfaction across the condominium management ecosystem.

The document details the system's positioning, highlighting its unique approach to solving the fragmented management landscape, and delineates the key features and functionalities that set it apart from traditional management solutions. It identifies the primary stakeholders and users, including condo management companies, their employees, and the condo residents, and articulates how the Rently System meets their varied needs.

Further, it provides a succinct overview of the product architecture, anticipated benefits, and the competitive advantage it offers.

Assumptions, dependencies, and a comparative analysis with existing alternatives are also presented, underscoring the system's potential to redefine condominium management.

Through this introduction, we aim to provide stakeholders with a clear understanding of the Rently System's objectives, its value proposition, and the transformative impact it promises for condominium management operations.

## 2. Positioning

### 2.1. Problem Statement

The problem of	Providing an all-in-one solution for managing all the condominium operations. This includes maintaining user and property profiles, financial records, facility reservations, service requests, and notifications.
affects	The condo management company, the condo management company employees, the condo owners, and the condo renters.
the impact of which is	The absence of an all-in-one solution causes unreliable management of all condominium operations. This leads to inaccuracies in user and property profiles, errors in financial records, difficulties in securing facility reservations, delays in service requests, and inconsistent notifications.
a successful solution would be	The implementation of a comprehensive solution that facilitates efficient management of property and user profiles, financial records, facility reservations, service requests, and notifications. This all-in-one solution should be user friendly, accessible across various devices and supporting a minimum of two different languages.

### 2.2. Product Position Statement

For	The condo management company employees, the condo owners, and the condo renters.
Who	All users have access to their assigned profiles, their financial records, the facility reservation calendar, the service request page, and notification page.
The Rently System	is a software product.
That	Updates all users in real time about all condominium operations. This includes their assigned profiles, their financial records, the facility reservation calendar, the service request page, and notification page.
Unlike	The traditional condo management systems that don't have all operations in an all-in-one user-friendly solution. This lacks real time cohesion between all condominium operations.
Our product	Updates all users in real time about all condominium operations. This includes their assigned profiles, their financial records, the facility reservation calendar, the service request page, and notification page. This provides users with a sense of security.

### 3. Stakeholder and User Descriptions

#### 3.1. Stakeholder Summary

Name	Description	Responsibilities
Condo Company	Oversees management and operations of condominium properties.	Guaranteeing that the software system works as intended to facilitate efficient condominium management.
IT Department	Management of technical infrastructure and support.	Responsible for the system's technical stability, security, and ongoing maintenance, including updates and support.
Government Agency	Regulatory body for condominium management.	Ensures the system's compliance with local regulations.
Investors/Board	Financial stakeholders in the condominium management company.	Invests in the system and expects it to yield operational efficiency and profit. Influences strategic direction and decision-making.
Owner/Renter Association	Represents the collective interests of condo owners and renters.	Advocates for owners' and renters' rights, ensures their needs are met by the management system, and influences policy.

#### 3.2. User Summary

Name	Description	Responsibilities	Stakeholder
Administrative Employee	Handles administrative tasks within condo management.	This involves creating property profiles, distributing registration keys, and setting up different roles for different employees.	Condo Company
Operational Employee	Manages daily operations and finance within the condo complexes.	Utilizes the system to streamline maintenance scheduling, handle financial transactions, and manage daily condominium operations.	Condo Company
Public User	Individuals that use the condominium management system.	Engages with the system to view and update personal profiles, register	Owner/Renter Association

		as owners/renters, and receive notifications.	
Owner or Renter	Owners or renters of condominium units.	Utilizes the system to view property information, make facility reservations, and make service requests.	Owner/Renter Association

### 3.3. User Environment

**Administrative Employee:** Administrative employees independently manage a variety of detailed tasks, including creating comprehensive property profiles, inputting condo unit details, and uploading relevant documents. The duration of these tasks range from minutes to several hours based on complexity. They are also responsible for distributing registration keys to link units with owner or renter profiles and assigning roles to operational employees. Work is performed in an office setting, requiring effective multitasking skills and a stable internet connection on platforms like Windows or macOS. Anticipated system updates, such as the introduction of forums, event organization tools, Single Sign-On functionalities, and support for multiple languages, are set to streamline administrative workflows. This will help integrate the system with existing accounting and CRM platforms.

**Operational Employee:** Operational employee's involvement in tasks ranges widely, tackling immediate fixes to longer-term projects, often on an individual basis or through teamwork. Their reliance on iOS and Android mobile devices stems from the need to stay connected while frequently on the move, addressing tasks in various locations, some of which may suffer from poor connectivity. This mobility underlines the importance of a system optimized for mobile access, allowing them to efficiently manage maintenance and operations regardless of their physical location. Anticipated system updates, such as the introduction of forums, event organization tools, Single Sign-On functionalities, and support for multiple languages, are set to streamline operational workflows.

**Public User:** Individual public users utilize the system for personal activities, like setting up their profiles with essential details such as a profile picture, username, email, and phone number, a quick process usually done in a few minutes. To become recognized as condo owners or renters, they're required to input a registration key given by the condo management company, which is similarly a brief procedure. They need system access across different settings, using web browsers and mobile applications on existing platforms, with plans to broaden access to more platforms and include additional languages. Future enhancements of the system are set to introduce features like Single Sign-On, community forums, event planning capabilities, and special promotions.

**Owner or Renter:** Owners and renters use the system personally for a range of tasks, from viewing detailed dashboards of their properties to submitting various requests. The dashboard provides a comprehensive overview, including personal profiles, condo details, financial status, and the status of submitted requests. Submitting requests, such as elevator reservations for moving, intercom changes, access needs (fobs, keys), reporting violations or deficiencies in common areas, or general inquiries, is streamlined for efficiency. Each request is promptly assigned to the appropriate operational employee based on its nature, ensuring a responsive and personalized management experience. Future system enhancements will focus on fostering community engagement through forums, event planning, and exclusive offers. The introduction of Single Sign-On functionality is expected to simplify access across various environments, supported on current web and mobile platforms with plans to expand to additional platforms and languages, enhancing the user experience.

### 3.4. Key Stakeholder or User Needs

**Administrative Employee:**

Need	Priority	Concerns	Current Solution	Proposed Solutions
Creating Property Profiles	High	User-friendly	Standard web forms	Streamlined profile setup with guided steps
Registration Key Distribution	High	Secure distribution and record-keeping	Separate system for key	Integrate feature within the application.

			distribution	
Employee Role Setup	High	Ease of assigning and adjusting roles	Separate system for assigning roles	Integrate feature within the application.

#### Operational Employee:

Need	Priority	Concerns	Current Solution	Proposed Solutions
Mobile Responsiveness	High	Access to system features while on the move	Unresponsive design on mobile	Works on IOS and Android
Notification page for requests	High	Immediate update on requests	Separate system for notifications	Integrate feature within the application.

#### Public User:

Need	Priority	Concerns	Current Solution	Proposed Solutions
Creating user profile	High	User-friendly	Standard web forms	Streamlined profile setup with guided steps
Viewing user profile	High	User-friendly	unresponsive design	Responsive, user-friendly design with easy navigation
Notification page for requests	High	Need for prompt and accurate updates	Separate system for notifications	Integrate feature within the application.

#### Owner or Renter:

Need	Priority	Concerns	Current Solution	Proposed Solutions
Viewing Property Info	High	User-friendly	unresponsive design	Responsive, user-friendly design with easy navigation
Submitting Requests	High	Timely submission and tracking	Separate request submission system	Incorporate a direct in-app request submission and tracking feature

### 3.5. Alternatives and Competition

#### Competitor's Product:

- **Strengths:** Competitor products are often well-established, featuring a comprehensive set of functionalities, backed by professional support and consistent updates. They typically offer scalability that can support growth and adapt to increasing demands.
- **Weaknesses:** These solutions may come with high costs and could include unnecessary features that complicate usage. They might not offer the specific customization needed to perfectly fit unique condo management requirements.

#### Homegrown Solution:

- **Strengths:** A custom-built solution can be precisely tailored to match the specific needs of condo management, potentially providing a more intuitive user experience and seamless integration with current operational workflows. This approach allows for greater flexibility in feature development and prioritization.
- **Weaknesses:** Developing a solution in-house can be resource-intensive, requiring significant time and financial investment. There's also the risk of encountering technical issues, and such systems may lack the comprehensive features and reliability found in established products.

#### Maintaining the Status Quo:

- **Strengths:** Opting to maintain existing processes avoids the costs and challenges associated with implementing a new system. It allows management and users to continue with familiar procedures without the need for retraining.
- **Weaknesses:** This approach may lead to operational inefficiencies and a lack of competitive edge in the long run. It fails to address the growing demand for digital convenience, potentially resulting in user dissatisfaction and challenges in managing modern condo properties effectively.

## 4. Product Overview

### 4.1. Product Perspective

The Rently system is self contained, except the database systems that are implemented to manage accounts and properties. The frontend system will interact with backend logic, which will connect to these external databases to show values of interest to users, renters/owners and condominium management companies.

The system will have many subsystems, that connect to relevant databases, the subsystems are shown below

- Profile Subsystem
  - Users component
  - Property component
- Financial Subsystem
- Reservation Subsystem
- Notification Subsystem
- Forum Subsystem

Their interconnections are shown in the block diagram below

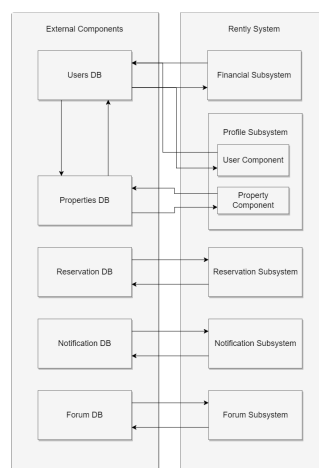


Figure 4.1 Rently System Block Diagram

## 4.2. Assumptions and Dependencies

This document makes assumptions on the availability of resources and the dependencies that will be used for development and deployment.

Firstly, this vision document assumes that the target system will be deployable and hosted on a 3rd-party system (either an aaS-type system, or hosted on a personal server). We further assume that the hosting service supports the type of application being used (ReactJS frontend, SpringBoot backend). Inability to find a system that supports these technologies can result in deployment delays and missed deliverables, especially in the final sprint of the project.

It is also assumed that stakeholders may not change their designs significantly, and that the given requirements are understood correctly without ambiguity. Any major changes encountered will be evaluated per the risk management plan and its associated components. Minor changes may be resolved quickly by way of meeting with stakeholders to achieve a middle-ground understanding.

Further, it is assumed that the external systems being used are fault tolerant and can handle exceptional situations. This is simply to help mitigate risks related to loss of data.

## 5. Product Features

The Rently system is designed to streamline condominium management by providing a comprehensive suite of features that apply to the needs of condo management companies, their employees, condo owners, and renters. By focusing on user-needs design and functionality, Rently aims to address the current gaps in the market, offering an all-in-one solution for efficient property management, financial oversight, and community engagement.

### Core Functionalities:

#### 1. User Profile Management

- **Description:** Enables users to create and manage personal profiles, including uploading pictures and updating contact details.
- **Why:** Essential for personalizing the user experience and ensuring clear communication.
- **Priority:** High - foundational for user engagement and security.
- **Attributes:** Stability (High), Benefit (High), Effort (Medium), Risk (Low).

#### 2. Property and User Association

- **Description:** Uses registration keys to link owners and renters with their properties, ensuring secure property-user associations.
- **Why:** Critical for accurate property management and user verification.
- **Priority:** High - impacts system integrity and user trust.
- **Attributes:** Stability (High), Benefit (High), Effort (Medium), Risk (Moderate).

#### 3. Dashboard for Property Overview

- **Description:** Offers detailed dashboards for property information, financial status, and management requests.
- **Why:** Provides users with a comprehensive view of their property-related transactions and statuses.
- **Priority:** High - enhances user experience and system usability.
- **Attributes:** Stability (High), Benefit (High), Effort (High), Risk (Low).

#### 4. Property Profile Creation

- **Description:** Allows condo management to create detailed property profiles with essential information and documents.
- **Why:** Centralizes property information for easy access and management.
- **Priority:** Medium - important for data organization and access.
- **Attributes:** Stability (Medium), Benefit (High), Effort (Medium), Risk (Low).

#### 5. Financial Management System

- **Description:** Simplifies managing condo fees, budgets, and financial reporting.

- **Why:** Ensures financial transparency and operational efficiency.
- **Priority:** High - vital for financial oversight and planning.
- **Attributes:** Stability (High), Benefit (High), Effort (High), Risk (Moderate).

#### 6. Reservation System

- **Description:** Enables booking of common facilities with a view of availability.
- **Why:** Simplifies the reservation process and facility management.
- **Priority:** Medium - adds value through convenience and utility.
- **Attributes:** Stability (Medium), Benefit (Medium), Effort (Medium), Risk (Low).

#### 7. Request Submission and Management

- **Description:** Streamlines the process for submitting and tracking management requests.
- **Why:** Facilitates efficient communication and timely response to resident needs.
- **Priority:** High - crucial for operational efficiency and resident satisfaction.
- **Attributes:** Stability (High), Benefit (High), Effort (High), Risk (Moderate).

#### 8. Notification System

- **Description:** Provides real-time updates on request statuses and property announcements.
- **Why:** Keeps stakeholders informed and engaged with the latest information.
- **Priority:** High - essential for communication and user engagement.
- **Attributes:** Stability (High), Benefit (High), Effort (Medium), Risk (Low).

#### Additional Features:

##### 9. Multilingual Support

- **Description:** Offers system usability in English and at least one other language.
- **Why:** Enhances accessibility and inclusivity for a diverse user base.
- **Priority:** Medium - broadens user accessibility and market reach.
- **Attributes:** Stability (Medium), Benefit (Medium), Effort (High), Risk (Low).

##### 10. Single Sign-On (SSO)

- **Description:** Allows login using Gmail or other accounts, streamlining access.
- **Why:** Simplifies the login process, enhancing user convenience.
- **Priority:** Medium - improves user experience without compromising security.
- **Attributes:** Stability (High), Benefit (Medium), Effort (Medium), Risk (Low).

#### Future Enhancements:

##### 11. Community Engagement Tools

- **Description:** Introduces forums, event organization tools, and special promotions.
- **Why:** Fosters a sense of community and engagement among condo residents.
- **Priority:** Low - offers additional value but not essential to core functionality.
- **Attributes:** Stability (Medium), Benefit (Low), Effort (High), Risk (Moderate).



## 6. Other Product Requirements

### Standards, Hardware, or Platform Requirements

- **Compatibility:** The application must be compatible with Android, iOS, Linux, macOS, and Windows platforms to ensure accessibility across a broad range of devices.
- **Web and Mobile Application Standards:** Ensure the application follows basic web development best practices, such as responsive design to accommodate various screen sizes and devices. Or functional UI on every browser. For mobile apps, adhere to platform-specific guidelines (Android's Material Design or iOS Human Interface Guidelines).
- **Security Basics:** Apply fundamental security practices, such as secure storage of user credentials and data encryption for sensitive information.
- **Hardware Requirements:** Minimal hardware requirements don't need to be specifically defined with information such as desired processor, ram, or operating system. Our browser app should be accessible on mobile and desktop platforms. Our browser app will be accessible for even lower-end platforms.

### Performance Requirements

- **Response Time:** The application should respond to user inputs within 2 seconds under normal conditions.
- **Availability:** The service must be available at all times, excluding scheduled maintenance windows.
- **Scalability:** Must support up to at least 1000 concurrent users without degradation of performance. This target aligns with the anticipated user base and ensures a quality user experience while staying within the constraints of available free-tier infrastructure and services. Eventually, if the need for a higher objective of concurrent users, upgrading tiers will be a possibility.

### Environmental Requirements

- **Energy Efficiency:** Mobile versions should be optimized for low power consumption options to preserve battery life. With features such as a UI dark mode.

### Quality Attributes

- **Robustness:** The system should handle invalid inputs or unexpected user behavior gracefully without crashing. Automated testing will be implemented such that, potential sudden bugs will be easy to track early on.
- **Fault Tolerance:** Having multiple server clouds or databases would help having a crashing system replaced immediately in the case of a problem. However, implementing such features might prove a little time costly. To be determined.
- **Usability:**
  - **Simplicity:** Use a clean, uncluttered interface with straightforward fonts and colors to highlight essential information, such as condo listings.
  - **Consistent Design:** Maintain uniformity in color schemes, button styles, and typography across the app to facilitate familiarity and ease of use.
  - **Navigation:** Implement a logical flow that allows users to quickly access their dashboard, property listings, and service requests with minimal effort.
  - **Responsive Design:** Ensure the app is adaptable across devices, providing a seamless experience on desktops, tablets, and smartphones.
- **Security:** Must implement strong encryption for data storage and transmission.

### Design and External Constraints

- **Design Simplicity:** Prioritize core functionalities like user registration and property listings, with a design that's straightforward and manageable within the project's scope.
- **Resource Limitations:** Utilize free and open-source tools and platforms suitable for student projects, focusing on essential features over advanced functionalities due to budget and time constraints.
- **Third-Party Services:** Choose cost-effective, possibly free-tier, third-party APIs such as Gmail for Single Sign-on and services for features such as notifications, emphasizing ease of integration. These APIs must be maintained for compatibility with no versioning issues.

## Documentation Requirements

- **Documentation:** Focus on clear documentation of design choices and code, which is crucial for educational projects and mimics professional software development practices.
- **Online Help:** Interactive help and FAQ sections within the app.

## Priority of Requirements

- **Security and Privacy:** Highest priority due to the sensitive nature of user and property information.
- **Usability and Accessibility:** Critical for user ease of use and satisfaction.
- **Performance and Reliability:** Key to demonstrating the app's effectiveness in handling condo management tasks smoothly within the scope of the project.
- **Compliance and Integration:** Aim to understand basic project considerations and ensure the app can successfully connect with external systems with limited budget and time.