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Software Systems Requirements Specification
SOEN 6481

Delivery #1

Date: May 20, 2022

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Vision Document

ETR - Electronic Tool Rental

1. Introduction

1.1. Scope

This document aims at understanding, analyzing and describing the needs and the features of the Electronic Tool Rental website which is an online platform for renting tools and equipment. Major stakeholders and users, assumptions, dependencies and features of the website etc. are described in this document.

1.2. Definitions, Acronyms and Abbreviations

- ETR: Electronic Tool Rental
- MVC: Model-View-Controller
- SQL: Structured Query Language

1.3. References

- [1] <https://www.ibm.com/docs/en/elm/7.0.0?topic=requirements-vision-document>
- [2] <https://personal.utdallas.edu/~chung/RE/Presentations10F/Team-hope/1%20-%20VisionDoc.pdf>
- [3] https://en.wikipedia.org/wiki/Vision_document
- [4] <http://trishmarie.com/vision>

2. Positioning

2.1. Problem Statement

The problem of	Lack of an online solution for renting tools or equipment
Affects	People looking for tools or equipment rentals
The impact of which is	Unavailability of tools or equipment whenever and wherever required
A successful solution would be	To create an online platform that provides a facility to rent tools and equipment so that these items are available at suitable prices to customers wherever and whenever they need it.

2.2. Product Position Statement

For	People looking for tools and/or equipment to rent
Who	Either want to borrow tools or equipment or who want to lend / lease tools or equipment
The ETR	is a software product, specifically a website
That	Facilitates easy searching and renting of tools and equipment by providing a common and a transparent online platform for the customers that can be accessed anytime and anywhere.
Unlike	The existing solution (that is, system-as-is) of manually finding and contacting an appropriate lender or lessor or distributor.
Our product	Helps customers rent tools and equipment whenever and wherever needed at a budget-friendly price. It plays the role of a middleman assisting customers get an appropriate deal for tools and equipment rental.

3. Stakeholder Descriptions

3.1. Stakeholder Summary

Name	Description	Responsibilities
ETR Company Management	The management of the company that needs to develop the online platform for rentals.	<ul style="list-style-type: none"> • Allocate required resources to the project and sponsor the development and maintenance of the project throughout.
Project Sponsors	Third party companies to which the management of ETR would approach for the purpose of sponsoring the project in terms of money.	<ul style="list-style-type: none"> • Provide funds for the development of project as per the decided policy. • Keep a track of system development status.
Branch Employees	Employees working at the branch of ETR.	<ul style="list-style-type: none"> • Responsible for check the inventory and ordering additional material if required. • Hand over and collection of the tools and equipment to and from customers. • Place an order for maintenance of the equipment time to time.
Quality Assessment Team	In-house or outsourced team that checks quality of the tools and equipment.	<ul style="list-style-type: none"> • The sole responsibility is to assess quality of the tools and equipment and to notify the status of each item to ETR.
Customer	End-user of the ETR website.	<ul style="list-style-type: none"> • Responsible for reserving, picking up, returning the tools and equipment and paying the rent and the deposit. • Provide feedback to ETR about overall experience.
System Administrator	ETR website supervisor or administrator	<ul style="list-style-type: none"> • Manage website's metadata and is responsible for maintaining the website. • Add new branches to the system whenever required. • Create users for branch employees.
Project Manager	Individual(s) who manage(s) ETR	<ul style="list-style-type: none"> • Plans and manages the overall project. • Assigns resources and reviews project progress.
Business Analyst	Requirement engineer of ETR	<ul style="list-style-type: none"> • Responsible for gathering, documenting, analyzing the requirements of ETR.
Solution Architect	Individual(s) who design(s) the overall technical structure of ETR.	<ul style="list-style-type: none"> • Responsible for designing the overall structure, workflows, database, coding artifacts required to build ETR website based on the requirement document.
Developers	Programmers assigned to this project	<ul style="list-style-type: none"> • Responsible to develop coding artifacts as per the design.
Testers	Test Engineers assigned to the project	<ul style="list-style-type: none"> • Responsible for quality assurance. • Responsible for executing various tests on developed artifacts.

3.2. User Summary

Name	Description	Responsibilities	Stakeholder
Customer	End-user of the ETR website.	<ul style="list-style-type: none"> • Make sure that the government issued photo id is valid at the time of rental and customer is at least 18 years old. • Log in to the website and search for required tool(s) or equipment on the website. • Book the required item(s). 	Self

		<ul style="list-style-type: none"> • Go to the nearest store to pick up the reserved items. • Pay the required deposit by a valid credit card. 	
System Administrator	ETR website supervisor or administrator	<ul style="list-style-type: none"> • Manage website's metadata and is responsible for maintaining the website. • Add new branches to the system whenever required. • Create users for branch employees. 	Self
Branch Employees	Employees working at the branches of ETR	<ul style="list-style-type: none"> • Manage the physical hand out and collection of tools and equipments to and from customers. • Mark the status of the items on the website and keep a track of information like date and time of actual pickup, condition of the items etc. on the website. • Ensure that the items displayed on the website, their condition, availability is correct at any point of time. • Ensure that the payment of the deposit amount is done before handing out the items to the customers. • Inventory management and stock management • Accurately update information about the store status (work hours, store schedule etc.) time to time. 	Self

3.3. User Environment

- Users are expected to have a working and stable internet connection and a web browser for using the website.
- Users should keep the web browser on their device updated to avoid any glitches pertaining to backward compatibility. Users should allow cookies and enable popups for getting the best experience of the website.

3.4 Key Stakeholder or User Needs

Need	Priority	Concerns	Current Solution	Proposed Solutions
Maximum availability	Critical	Ensures availability of the website for a maximum amount of time.	None	ETR website will have appropriate failure management in the form of exception handling etc.
Easy Searching	High	Navigation and tool search should be intuitive enough for users even with less experience of using websites.	None	User interface will be user-friendly to guide users to the right places. ETR will use auto-suggestion technique to help customers search items on the website.
Security & Privacy	Critical	User's information should be protected all the time.	None	Website will store the user's personal information securely and assign login credentials to each user.
Availability Correctness	Critical	Users would look at the availability while renting an item.	None	Website shall have correct availability displayed for each item.
Maintainability	High	It would be difficult to accommodate new feature requests or bug fixes if the website is not maintainable.	None	Website shall be designed in a way taking into account possible future updates. Modular design pattern shall be followed.
Location Accuracy	High	Users will need to be shown the accurate location of pickup.	None	Website will have the exact location displayed on the User Interface.

4. Product Overview

4.1. Product Perspective

The website is based on PHP MVC architecture using MySql for database connectivity. Here is a high-level context diagram showing user interactions with the system for specific functionalities performed by main stakeholders.

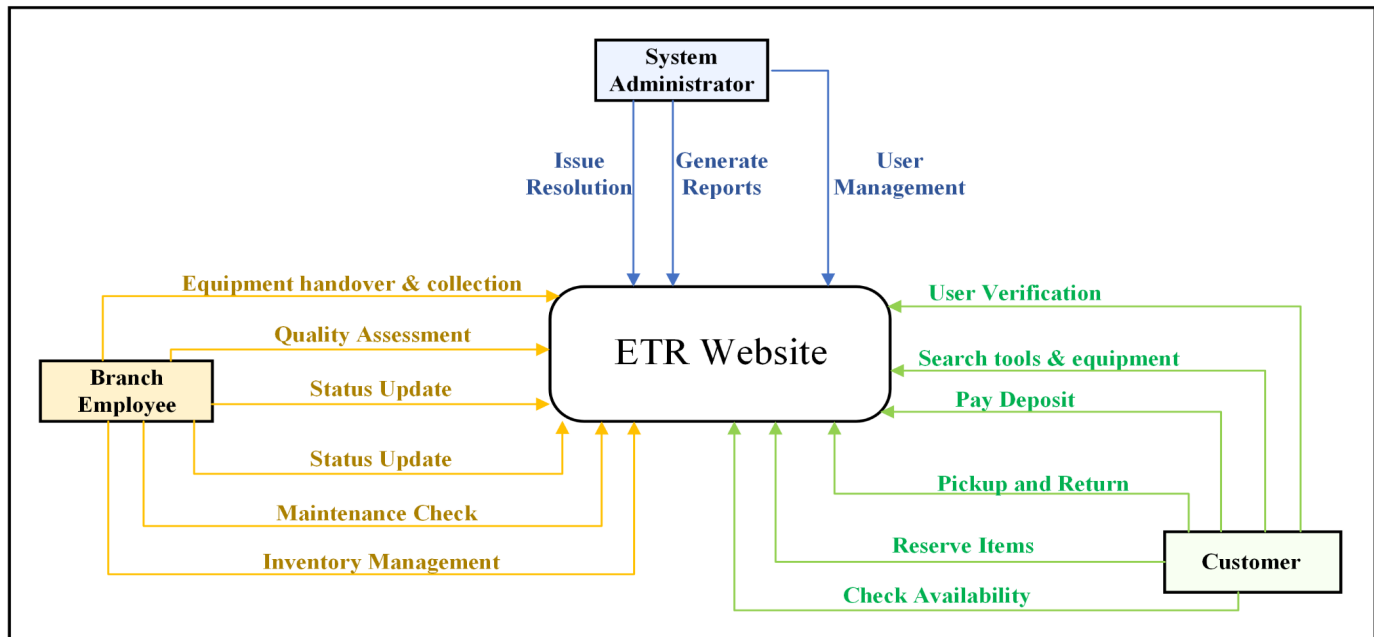


Figure 1: Context Diagram

4.2. Assumptions and Dependencies

Assumptions	Dependencies
User has a stable internet connection.	If this assumption is false then the website will not be accessible to the user.
Customers hold correct login credentials.	Customers might just get to check the available tools but would not be able to reserve them.
Customers return the rented items in the same condition as it was before they were picked up.	It is a potential risk because if the items are not in the same condition then they would not be rentable again, incurring a loss to the company eventually.
Stores have ample amounts of equipment and tools available for rental.	It will affect store location display in case some store does not have the requested item.

5. Product Features

5.1. Login

Users will be able to login to the website by using their (valid) credentials.

5.2. Profile information update

Users will be able to perform updates to their own profile information only after they log in to the website.

5.3. History tracking

Users shall be able to see their past rentals along with the respective date and timestamps.

5.4. Search functionality

Users shall be able to search for tools and equipment by typing relevant keyword(s) in the search bar displayed at the top of the website.

5.5. Real-time data

The availability of the listings on the website shall be updated on a real-time basis giving the users the best view of the actual availability.

5.6. Location display

Once the user reserves an item, they will be notified on the screen with the pickup location of the store.

5.7. User verification

At the time of signing up, the website shall ask users to upload or show a proof of being at least 18 years old. If the condition is not satisfied, the website shall not allow the user to go ahead.

5.8. Return reminder

The website shall send reminder email automatically for any upcoming returns.

5.9. Order validation

When a user is reserving items, the website shall check in the backend if the request has only one item associated with one reservation order in order to adhere with the business policy.

5.10. Rental time validation

The website shall validate the rental start time. It can be as early as the next day or 30 days in advance.

5.11. Rental Period Evaluation

Users should be allowed to rent an item for a minimum of 4 hours. The website shall give long term options for rentals like daily, weekly, monthly.

5.12. Item categorization

The website shall be able to categorize items according to various criteria like industry where it is used or size or type of equipment etc. This shall help users filter unnecessary search results.

5.13. View and update profiles

Admin access to all users' basic profile information but not to the protected information like password etc.

5.14. User creation

System administrator shall be able to create new users for branch employees.

5.15. Visual indicators

Website shall provide visual indicators for availability, store location, user's feedback etc to make the experience more intuitive.

5.16. Online help tab

The website shall have a dedicated tab at the top of the page guiding user to the online help page which will act as the user manual.

5.17. Add new item

Branch employees and system admin will be able to add new items to the website listing.

5.18. Delete an item

Branch employees and system admin will be able to delete items from the website in case required. However, if the same item is already being rented at the time of deletion then the system shall not approve deletion.

5.19. Update an item

Branch employees shall be able to update tools description, status, availability etc.

5.20. Status update

Branch employees are responsible to update the status of the tools to Available, Rented, Out of Order, Not Available etc.

5.21. View Recently Viewed items

Customers shall be able to view their own recently viewed items for the purpose of increasing user-friendliness.

5.22. Report generation

ETR website shall allow only the system administrators to generate reports for management purposes based on rentals data available in the system's backend not creatable or viewable by customer and branch employee.

5.23. Receipt generation

Once the deposit is paid by the customer at the time of pickup, the website shall be able to generate the receipt for the same.

6. Other Product Requirements

Requirement	Priority	Description
Performance	High	Overall latency or wait time should be as low as possible serving the user requests as fast as it could.
Scalability	High	The website should be able to handle a decently high load of user requests. It varies by case-to-case but it should be designed in a way so that it accommodates more feature requests in future.
Availability	High	The website should ideally have no downtime making the content always available for users.
Robustness	High	The website should handle certain negative or corner-case scenarios like invalid input etc.
Usability	High	The user interface of the website should be intuitive enough so that it would guide users navigate to the right places during the reservation journey avoiding focus on unnecessary information.
Security and Privacy	Critical	The website should securely store user's personal information like name, email, contact number, address, payment details (in some cases) and should prevent users from viewing other user's profile information.
Maintainability	Medium	As maintainability is directly proportional to the system design, the design should be flexible enough to accommodate future maintenance activities.
Accessibility	High	The website should be accessible anytime anywhere from the user's device. Additionally, users should have a stable internet connection to access the website.

7. Appendix

7.1. Activity Log

Section	Time Spent
Introduction	1.5 hours
Positioning	1.5 hours
Stakeholder Description	4 hours
Product Overview	2.5 hour
Product Features	3 hours
Other Product Requirements	1 hour
Cover Page, Index Page, Overall Content Review	1.5 hours

7.2. Version History

Date	Version	Description
May 20, 2022	1.0	Initial version of vision document