Vision Document
Electronic Tool Rental

1. Introduction

The purpose of this document is to collect, analyze and define high-level needs and features of the Electronic Tool Rental (ETR) System. It focuses on the capabilities needed by the stakeholders, and the target users, and why these needs exist. The details of how the Electronic Tool Rental System fulfills these needs are detailed in the use-case and supplementary specifications.[1]

ETR is a website to help customers to rent tools and equipment for their improvement needs. It has three main users: customer, system administrator, and branch employees. Admin is responsible for adding new branches. Branch employees are responsible for day-to-day operations of the branch, including handing out and accepting borrowed tools and managing tool inventory. Customers put in reservations for tools.

1.1 References

[1] Rational Software Corporation. Collegiate Sports Paging System Set of Example Artifacts. October 6, 1999.

2. Positioning

2.1. Problem Statement

The problem of	procuring expensive tools for one-off or infrequent use.
Affects	people in the home renovation and improvement space
The impact of which is	They are unwilling to pay large retail prices on tools that may not see frequent use or are completely out of budget.
A successful solution would be	them being able to reserve sets of common to professional tools on a rental basis with good availability.

2.2. Product Position Statement

For	hobbyists, entrepreneurs, and small business owners
Who	are attempting hobbyist home renovation or improvements, or attempting professional craft without the funding to buy the tools up front
The Electronic Tool Rental System	is a rental management software product
That	handles the inventory and reservation/rental of tools
Unlike	tool and hardware retailers that require all of the payment up front or with high interest installments
Our product	lets the customer procure tools for a short period of time at a greatly lowered price point

3. Stakeholder Descriptions

3.1. Stakeholder Summary

Name	Description	Responsibilities
Customer	Customers rent the available tools through reservation requests. Main revenue source. Must be 18 years of age and have a government issued photo-ID and valid credit card.	Pays the branch in exchange for rental of tools.
Advertisers	Companies that pay to advertise to the customers of the system.	Provide tools for branch inventory at a discounted rate as a form of advertising, pay for physical advertising space inside the branch store area
Tool Suppliers	Firms that supply tools, usually to retailers. Might be manufacturers as well.	Provide repair of tools, supply new tools based on branch demand, only source of certain tools in case of nation-wide franchise holders of an international manufacturer (e.g. Laser rust removal equipment)
Branch Investors/Shareholders	Entities that invest in or own branches.	Stocking branch inventory, hiring employees, providing infrastructure for warehousing and store
Branch Employees	Paid workers managing day-to-day operations of branches.	Fulfills reservations by handing out equipment, ensures proper return of tools, documents state of the tool during both rental and return processes, ensures status of inventory is reflected in the system, handles manual payments, proper storage of tools, prepare reports of branch functioning, prepare reports of tool requests, prepare reports of missing tools, relate with suppliers for maintenance and repair of tools, verifies credit card at time of pick-up
Architects	Act as development lead that defines the interacting yet modular components of the system	Define the MVC system architecture, coding practices, external and internal components, and communicate with business owners.
Developers	Developers of the website	Responsible for producing the end product in the form of a stable, well-tested, and low maintenance PHP-based website. Should be familiar with MVC architecture. Be able to understand and follow requirements from the requirements documents.
DBA	Database Administrators develop, maintain, and	Must have in-depth knowledge of MySQL. Will be responsible for representing the entities and relationships of the system in

	administrate the database for the website.	the relational DBMS. Will perform various tests such as stress testing to ensure the database is performant at the target scope.
Quality Assurance	QA experts pick apart the website to find bugs in the website.	Extensively test the application before it is moved to production. Test any updates in staging before they are applied to the system in production.

3.2.   User Summary

Name	Description	Responsibilities	Stakeholder
Customer	End users that rent the available tools through the application.	Creates reservation requests, browses branch inventory for required tools, pays rental fees	Self-represented
Branch Employees	Paid workers managing day-to-day operations of branches.	Fulfills reservations by handing out equipment, ensures proper return of tools, documents state of the tool during both rental and return processes, ensures status of inventory is reflected in the system, handles manual payments, proper storage of tools, prepare reports of branch functioning, prepare reports of tool requests, prepare reports of missing tools, relate with suppliers for maintenance and repair of tools.	Self-represented.
Super Admins	Administrators with the highest privilege level.	Add new branches, provide reports for stakeholders, form a bridge between branch employees and developers in case of issues	Super Admins.

3.3.   User Environment

Customers interact with the website through a computer's or a mobile device's browser. They will browse the inventory of their nearest branch and check the availability of their required tools. For each tool, they will put up a separate reservation request for a minimum rental period of 4 hours. A prerequisite is that they need to attach a government photo-ID to ensure correct use of the website's services. On the day of the pick-up, they will arrive with their credit card to make the initial deposit. They will return the tool(s) to the branch before their rental period is over and pay the remaining balance or renew the rental period.

Branch Employees will be expected to access the system only through terminals setup in the branch itself. Each terminal has capabilities such as processing reservation requests, accepting payments, providing refunds, extending rentals, viewing status of tools, manually setting status of tools, etc.

Super Admins work from the business headquarters and access a special user interface to handle their responsibilities.

3.4 Key Stakeholder or User Needs

Need	Priority	Concerns	Current Solution	Proposed Solutions
View and set status of tools	High	Employee Response Time	Warehouse checkout sheets have to be parsed manually by the employee to find out the current status of the tool (available, rented out, out of stock, out for repair, etc.)	Automatically handle the status of tools depending on active rentals, and also allow employees to manually set specific statuses (e.g. broken down, out for repair, etc.)
Browse Branch Inventory	High	Customer Satisfaction	Customer calls in to the branch or attends physically to enquire about their required tools. The tools may not be in inventory or be otherwise unavailable for rental.	Customers can browse the entire inventory of the branch and check the rental schedule and availability of tools at their own leisure through the website.
Handle Payments	Medium	Auditing	Employees handle payments through a receipt system that attaches to a book-kept rental history.	Payments are easier to follow if the history of rentals is made digital.
Stable Website	High	Customer Satisfaction and Efficiency of Employees	None	90%+ code coverage with unit tests, automated integration tests, QA pass before deployment
Responsive Website	Medium	Expand the user environments suitable for using the website.	None	Using responsive frameworks or guidelines at the HTML and CSS level to ensure the website adapts to various display sizes.

4.   Product Overview

4.1.   Product Perspective

This product will provide a brand-new web based user interface for customers that augments the existing experience of renting tools from the business's branches. It will augment the employee experience and digitalize many tasks being done by hand at the moment. The data will be stored in a separate database server, and the business logic is housed in a separate server. This server is also responsible for serving the application website to the end users. Thus, MVC architecture is enforced from the development stand-point, and business end users only interact with the front end of the application.

4.2.   **Assumptions and Dependencies**

Assumptions	Dependencies
Branches with some inventory and records already exist.	In case of new branches, the on-boarding process can be streamlined to a great extent.
Website will work in the two latest major versions of Chrome, Safari, and Firefox.	In case a browser is discontinued or presents breaking changes, the document must be updated to address these issues.
Developers and DBAs have expertise in MVC architecture, PHP, HTML, CSS, and MySQL	Developers and/or DBAs need some time for training in these technologies, adding to the time and budget estimate of the project.

5. Product Features

1. Public Sign-Up: Sign up form for customers. Employees are registered by existing manager-level employees or super admins.
2. Log-In: All end user types can login to the system through a unified portal. The user interface accessed then depends on the user type.

   Customers:

3. Dashboard: View current reservations and remaining time on any rentals. View remaining balance to be paid.
4. Transaction: View complete payment history.
5. Browse: Browse the inventory of the closest branch. Has a powerful search to enable searching tools by type, brand, make, power, etc.
6. Profile: Allow customers to edit their profile. Most importantly, let them upload a copy of a government photo ID that is required to reserve tools.
7. Tool Page: Displays the reservation schedule and availability for a tool, including total amount available. Let the customer make a reservation request in available time slots.

   Branch Employees:

8. Browse: Browse the inventory of their employer branch and view availability, status, and complete history of rentals. Lets the employee edit the status to specific states, e.g. "out for repair".
9. Modify Inventory: Modify the total count of a tool in the inventory, with the option to add a new item. Employees will have to fill a form describing the reason for the addition or removal of inventory.
10. Reservations: View reservations for a user, and process them (renting and returning equipment), along with handling credit cards for deposit and payments on return of equipment

6. Other Product Requirements

1. Ensure privacy between branches so branch employees cannot modify inventory of other branches. However, they should be able to browse other branches to aid a customer in case of lacking inventory at their own branch.
2. A help section along with a support form and an FAQ for customers.
3. Product should comply with latest web standards (HTML5, CSS3, etc.)
4. A tutorial for new customers should be provided.
5. Minimum requirements for reserving tools through the website is signing up and providing a government photo-ID to verify identity and age (>= 18 years). The website should be designed to delay these to the last moment possible to minimize friction and retain new users.