Software Requirements Specification for Sayyara: Progressive Web Application for Independent Automotive Repair Shop Industry

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October 5, 2022

Contents

Table 1: Revision History

Date	**Developer(s)**	**Change**
September 30, 2022	Leon So	Add purpose of project
September 30, 2022	Joy Xiao	Add stakeholders
September 30, 2022	Leon So	Add functional requirements for authentication
October 2, 2022	Leon So	Add current situation and appointment diagram
October 2, 2022	Joy Xiao	Add current situation quote and invitation diagram
October 3, 2022	Leon So	Add current situation work order diagram
October 3, 2022	Arkin Modi	Add functional requirements for work orders
October 4, 2022	Leon So	Add context of work diagram
October 4, 2022	Leon So	Add SRS subtitle

This document describes the requirements for .... The template for the Software Requirements Specification (SRS) is a subset of the Volere template (Robertson and Robertson, 2012). If you make further modifications to the template, you should explicity state what modifications were made.

1 Project Drivers

1.1 The Purpose of the Project

Independent auto repair shops do not have an efficient way of reaching and interacting with new customers. Currently, many independent shop owners rely on word-of-mouth referrals as a main channel to acquiring new customers. Independent auto repair shops are also spending a significant amount of their time on administrative work such as managing appointments and providing quotes. As a result, independent auto repair shops have a difficult time competing with larger repair shops which have dedicated systems and services in place.

On the other hand, customers do not have an effective way to find and compare auto repair shops. Currently, one of the only ways to compare repair shops is by manually searching or reaching out to repair shops one-by-one. This process can often be repetitive and time-consuming.

Sayyara is a progressive web application (PWA) which will act as a single platform for independent auto repair shops and vehicle owners. This platform will allow independent auto repair shops and vehicle owners to interact in a more efficient and effective manner. Vehicle owners can search for auto repair shops and services based on a variety of search filters; request quotes for service; book, view, and manage service appointments. On the application, auto repair shop owners will have full shop management capabilities such as: adding and managing a list of employees; managing a list of service types and corresponding service appointment availabilities; managing store information such as location, hours of operation, and contact information. Auto repair shop owners and employees will be able to manage quotes, service appointments, and work orders from a single application. Ultimately, Sayyara will significantly improve the auto repair experience for both independent auto repair shops and vehicle owners.

1.2 The Stakeholders

1.2.1 The Client

The client of the project is Nabeel Ibrahim. Nabeel will be the point of contact throughout the development of the project.

1.2.2 The Customers

The customers of Sayyara will be independent auto repair shop owners, shop employees, and vehicle owners who are looking for a vehicle repair or maintenance service.

1.2.3 Other Stakeholders

Other stakeholders of the project are the developers, Tiny Coders, who are designing and implementing the project.

1.3 Mandated Constraints

1.4 Naming Conventions and Terminology

1.5 Relevant Facts and Assumptions

User characteristics should go under assumptions.

2 Functional Requirements

2.1 The Scope of the Work and the Product

2.1.1 The Current Situation

The current interactions between independent auto repair shop owners, employees, and customers (i.e., vehicle owners), are often a manual process. Outlined below are models for interactions between the independent auto repair shop owners, employees, customers, and the proposed system.

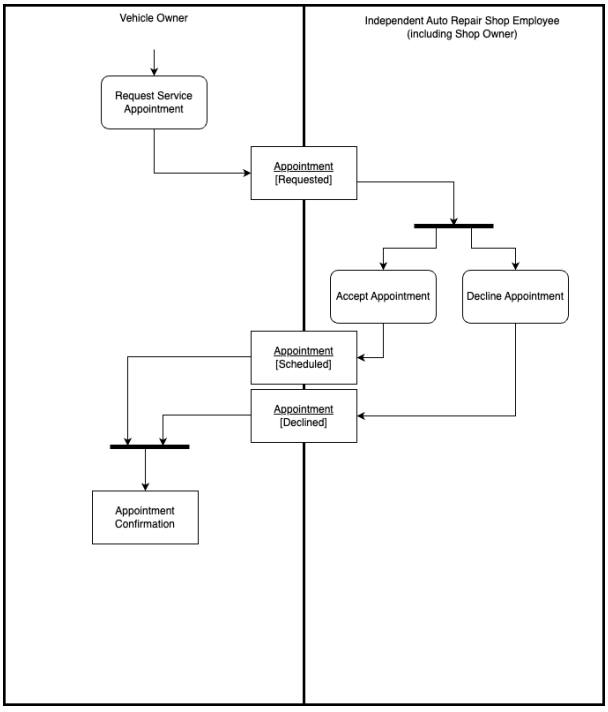

Figure 1: Service Appointments

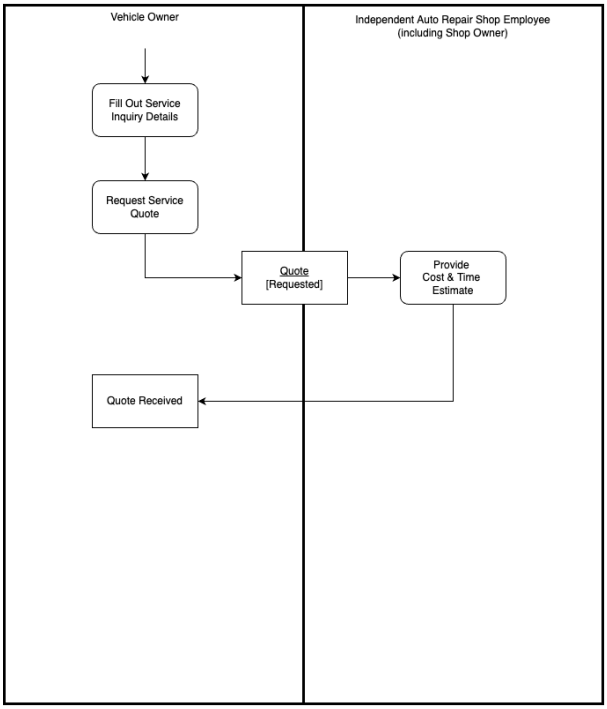

Figure 2: Service Quotes

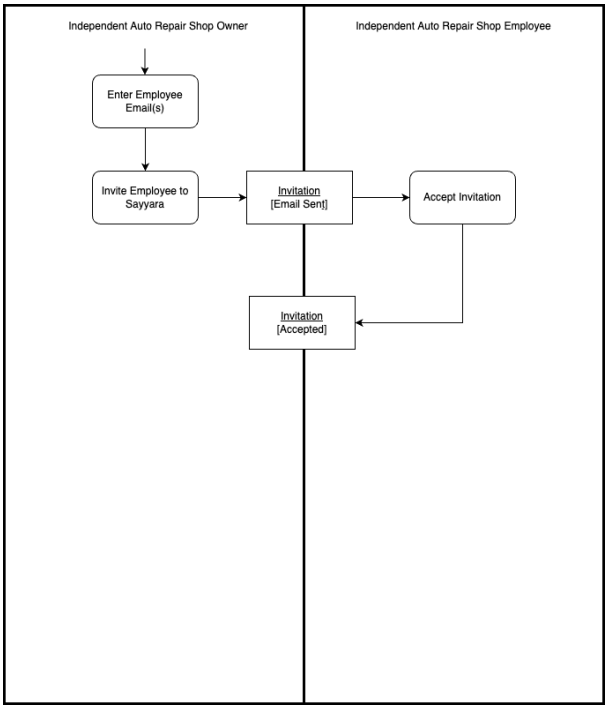

Figure 3: Employee Invitation to Join Auto Repair Shop

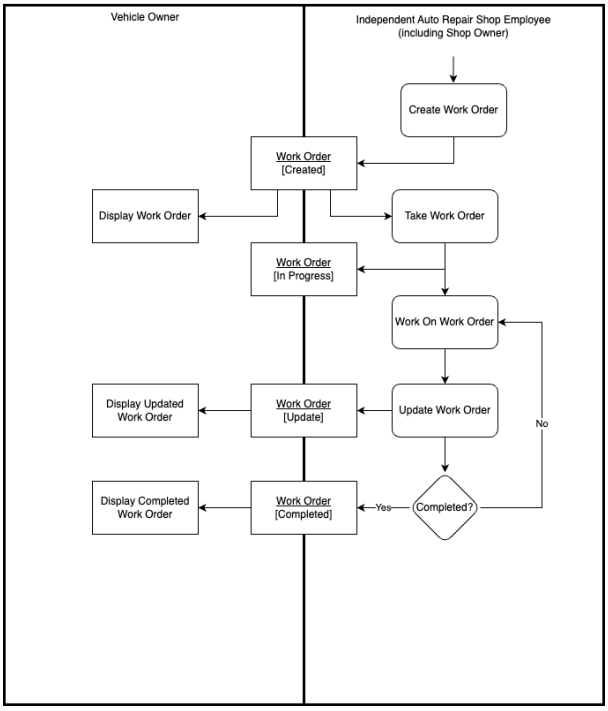

Figure 4: Work Orders

2.1.2 Context of the Work

The context diagram depicted below illustrates the interactions of the system with adjacent external systems and services.

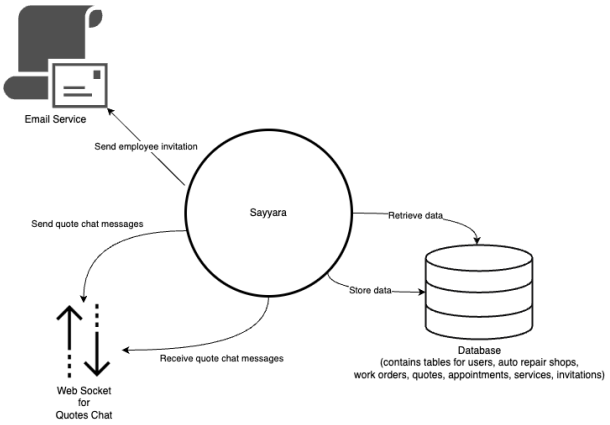

Figure 5: Context Diagram (Sayyara)

2.1.3 Work Partitioning

2.1.4 Individual Product Use Cases

2.2 Functional Requirements

2.2.1 Authentication

BE1. The user wants to sign up for an account

VP1. Viewpoint: Vehicle Owner

i. The system shall allow the user to enter an email and password

ii. The system shall allow the user to enter their name

iii. The system shall allow the user to enter their phone number

iv. The system shall transition to the vehicle owner landing page after the registration process is complete and successful

v. The system shall allow the user to cancel and exit the registration process

VP2. Viewpoint: Auto Repair Shop Owner

i. The system shall allow the user to enter an email and password

ii. The system shall allow the user to enter their name

iii. The system shall allow the user to enter their phone number

iv. The system shall allow the user to enter the shop name

v. The system shall allow the user to enter the shop address

vi. The system shall allow the user to enter the shop phone number

vii. The system shall transition to the shop owner landing page after the registration process is complete and successful

viii. The system shall allow the user to cancel and exit the registration process

VP3. Viewpoint: Auto Repair Shop Employee

i. The system shall allow the user to enter an email and password

ii. The system shall allow the user to enter their name

iii. The system shall allow the user to enter their phone number

iv. The system shall transition to the employee landing page after the registration process is complete and successful

v. The system shall allow the user to cancel and exit the registration process

BE2. The user wants to login to their account

VP1. Viewpoint: Vehicle Owner

i. The system shall allow the user to enter their email and password

ii. The system shall transition to the vehicle owner landing page after the login process is complete and successful

iii. The system shall allow the user to cancel and exit the login process

VP2. Viewpoint: Auto Repair Shop Owner

i. The system shall allow the user to enter their email and password

ii. The system shall transition to the shop owner landing page after the login process is complete and successful

iii. The system shall allow the user to cancel and exit the login process

VP3. Viewpoint: Auto Repair Shop Employee

i. The system shall allow the user to enter their email and password

ii. The system shall transition to the employee landing page after the login process is complete and successful

iii. The system shall allow the user to cancel and exit the login process

2.2.2 Work Orders

BE3. An appointment has been scheduled

VP1. Viewpoint: Vehicle Owner

N/A

VP2. Viewpoint: Auto Repair Shop Owner

i. The system shall create a work order

ii. The system shall populate the customer data and vehicle data from the quote

iii. The system shall populate the customer data and vehicle data from the appointment if the quote is not available

iv. The system shall populate expected services performed and parts needed from the quote

v. The system shall populate expected services performed and parts needed from the appointment if the quote not available

VP3. Viewpoint: Auto Repair Shop Employee

i. The system shall create a work order

ii. The system shall populate the customer data and vehicle data from the quote

iii. The system shall populate the customer data and vehicle data from the appointment if the quote is not available

iv. The system shall populate expected services performed and parts needed from the quote

v. The system shall populate expected services performed and parts needed from the appointment if the quote not available

BE4. An appointment has been cancelled

VP1. Viewpoint: Vehicle Owner

N/A

VP2. Viewpoint: Auto Repair Shop Owner

i. The system shall delete the associated work order

VP3. Viewpoint: Auto Repair Shop Employee

i. The system shall delete the associated work order

BE5. The user wants to search for a work order

VP1. Viewpoint: Vehicle Owner

N/A

VP2. Viewpoint: Auto Repair Shop Owner

i. The system shall allow the user to enter the customer name, assigned employee, service type, and a date range

ii. The system shall list the work order matching the inputted criteria

VP3. Viewpoint: Auto Repair Shop Employee

i. The system shall allow the user to enter the customer name, assigned employee, service type, and a date range

ii. The system shall list the work order matching the inputted criteria

BE6. The user wants to view past work orders

VP1. Viewpoint: Vehicle Owner

N/A

VP2. Viewpoint: Auto Repair Shop Owner

i. The system shall list the past work orders

VP3. Viewpoint: Auto Repair Shop Employee

i. The system shall list the past work orders

BE7. The user wants update an work order

VP1. Viewpoint: Vehicle Owner

N/A

VP2. Viewpoint: Auto Repair Shop Owner

i. The system shall list the open work orders

ii. The system shall allow the user to edit the services performed, parts required, odometer readings, customer details, employee assigned, car details, discounts, digital vehicle inspection, and extra notes

iii. The system shall update the work order with the entered values

VP3. Viewpoint: Auto Repair Shop Employee

i. The system shall list the open work orders

ii. The system shall allow the user to edit the services performed, parts required, odometer readings, customer details, employee assigned, car details, discounts, digital vehicle inspection, and extra notes

iii. The system shall update the work order with the entered values

BE8. The customer has paid for the work done on their vehicle

VP1. Viewpoint: Vehicle Owner

N/A

VP2. Viewpoint: Auto Repair Shop Owner

i. The system shall send a copy of the work order to the assigned customer's email

ii. The system shall mark the work order as "Completed"

iii. The system shall mark the associated appointment as "Completed"

VP3. Viewpoint: Auto Repair Shop Employee

i. The system shall send a copy of the work order to the assigned customer's email

ii. The system shall mark the work order as "Completed"

iii. The system shall mark the associated appointment as "Completed"

BE9. The user wants to view the details of a work order

VP1. Viewpoint: Vehicle Owner

N/A

VP2. Viewpoint: Auto Repair Shop Owner

i. The system shall list the shop details, services to be performed with their individual bill rates and expected number of hours for completion, parts

required and their cost, odometer reading before and after service, customer details, assigned employee, car details, any applied discounts, final balance for the customer, warranty information, digital vehicle inspection, and any extra notes

VP3. Viewpoint: Auto Repair Shop Employee

i. The system shall list the shop details, services to be performed with their individual bill rates and expected number of hours for completion, parts required and their cost, odometer reading before and after service, customer details, assigned employee, car details, any applied discounts, final balance for the customer, warranty information, digital vehicle inspection, and any extra notes

3 Non-functional Requirements

3.1 Look and Feel Requirements

3.2 Usability and Humanity Requirements

3.3 Performance Requirements

3.4 Operational and Environmental Requirements

3.5 Maintainability and Support Requirements

3.6 Security Requirements

3.7 Cultural Requirements

3.8 Legal Requirements

3.9 Health and Safety Requirements

This section is not in the original Volere template, but health and safety are issues that should be considered for every engineering project.

4 Project Issues

4.1 Open Issues

4.2 Off-the-Shelf Solutions

4.3 New Problems

4.4 Tasks

4.5 Migration to the New Product

4.6 Risks

4.7 Costs

4.8 User Documentation and Training

4.9 Waiting Room

4.10 Ideas for Solutions

References

James Robertson and Suzanne Robertson. *Volere Requirements Specification Template*. Atlantic Systems Guild Limited, 16 edition, 2012.

[The following is not part of the template, just some things to consider when filing in the template. —TPLT]

[Grammar, flow and LaTeXadvice:

- For Mac users `*.DS_Store` should be in `.gitignore`
- LaTeX and formatting rules
  - Variables are italic, everything else not, includes subscripts (link to document)
    - Conventions
    - Watch out for implied multiplication
  - Use BibTeX
  - Use cross-referencing
- Grammar and writing rules
  - Acronyms expanded on first usage (not just in table of acronyms)
  - "In order to" should be "to"

—TPLT]

[Advice on using the template:

- Difference between physical and software constraints
- Properties of a correct solution means *additional* properties, not a restating of the requirements (may be "not applicable" for your problem). If you have a table of output constraints, then these are properties of a correct solution.
- Assumptions have to be invoked somewhere
- "Referenced by" implies that there is an explicit reference
- Think of traceability matrix, list of assumption invocations and list of reference by fields as automatically generatable
- If you say the format of the output (plot, table etc), then your requirement could be more abstract

—TPLT]

5 Appendix

This section has been added to the Volere template. This is where you can place additional information.

5.1 Reflection

The information in this section will be used to evaluate the team members on the graduate attribute of Lifelong Learning. Please answer the following questions:

1. What knowledge and skills will the team collectively need to acquire to successfully complete this capstone project? Examples of possible knowledge to acquire include domain specific knowledge from the domain of your application, or software engineering knowledge, mechatronics knowledge or computer science knowledge. Skills may be related to technology, or writing, or presentation, or team management, etc. You should look to identify at least one item for each team member.
2. For each of the knowledge areas and skills identified in the previous question, what are at least two approaches to acquiring the knowledge or mastering the skill? Of the identified approaches, which will each team member pursue, and why did they make this choice?

5.2 Symbolic Parameters

The definition of the requirements will likely call for SYMBOLIC_CONSTANTS. Their values are defined in this section for easy maintenance.