Rabbeshly Station

Software Requirements Specification

V0.4AI
V0.5

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This comprehensive system acts as both an Enterprise Resource Planning (ERP) platform and a marketplace, catering to various sectors of the Libyan car industry and its users. It offers a diverse range of services that benefit various stakeholders, including everyday drivers, mechanics, shop owners, scrapyards, and even the government

1. Products/Scope:

1.1 **Car Station:** A platform for users to manage their car information and share their passion for cars. This includes:

   1.1.1 **Car Profile:** Store car details and receive personalized maintenance reminders.
   1.1.2 **Suggestions and tips:** for the \<owners\> car to help preserve the cars value condition, such as: 'Regular Maintenance reminders'.
   1.1.3 **Car-Station Feed:** Share and discuss car-related news and experiences

1.2 **Shop Station:** A point-of-sale (POS) system for shops to manage their business operations, including:

   1.2.1 **Shop Profile:** Increase online presence and sales through an online store.
   1.2.2 **A.I-driven Assistant:** Optimize sales, purchases, and inventory through data-driven insights.
   1.2.3 **Online/On-site Management tools:** Manage sales data, employee accounts, inventory, sales performance, and more.

1.3 **Workshop Station:** An ERP and POS system to manage workshop workflow, including:

   1.3.1 **Workshop Profile:** Showcase workshop expertise and work history to attract customers.
   1.3.2 **A.I-driven Assistant:** Improve decision-making for parts per-ordering, avoiding unsuitable repairs, and increasing profitability.
   1.3.3 **Online/On-site Management tools:** Streamline workflow by managing repairs, providing customer estimates, tracking employee performance, and more.

1.4 **Marketplace:** A customization feed showcasing cars, workshops, scrapyards, and advertisements, allowing users to buy, sell, and promote products and services.

1.5 **Service Station:** The central hub connecting all services, allowing:

   1.5.1 **Car owners:** Find nearby workshops based on specialization, previous work, or similar repairs.
   1.5.2 **Businesses:** Connect workshops with nearby shops and scrapyards for parts procurement.
   1.5.3 Web scrapping: Gather data on similar items from external platforms like Facebook and eBay.

1.6 **Data Station:** A central data repository for managing:

     1.6.1 **Basic data:** Manage business, car, and customer data.

       1.6.2 AI data: Gain insights through AI analysis.

       1.6.3 Statistical data: Analyze market trends and competitor behavior.

       1.6.4 Web scrapped data: Gather data on similar items from external platforms like Facebook and eBay.

       1.6.5 Government access: Provide authorized entities with data access for regulatory purposes.

1.2. Audience segments:

    1.2.1. **Owners:** Car, shop, workshop, and scrapyard owners.

    1.2.2. **Workers:** Mechanics and other workers in shops, workshops, and scrapyards.

    1.2.3. **Businesses:** Shops, workshops, and government entities.

    1.2.4. **Others:** Individuals passionate about cars.

    1.2.5. **B2B Solution seekers:** Businesses looking for solutions to optimize their operations.

1.3. Not Station-like:

    1.3.1.   **Not station-like functionalities:**

      1.3.1.1 Transfer of ownership and vehicle registration

      1.3.1.2 The system won't handle car-related loans

      1.3.1.3 The system won't provide car insurance

      1.3.1.4 Social media features beyond the car-centric feed: While the Car-Station feed allows sharing car-related content, features like friend requests, or non-car-related content wouldn't be part of the system.

      1.3.1.5 Car delivery or repair services: The system would connect users with workshops, but wouldn't offer car delivery, towing, or on-site repair services.

    1.3.2. **Not station-like entities:**

      1.3.2.1 Non-car-related businesses: This system focuses on the car industry. Entities like restaurants, grocery stores, or other non-car-related businesses wouldn't be included in the marketplace or other functionalities.

      1.3.2.2 **Private individuals selling personal items:** While individuals can sell car-related products in the marketplace, selling non-car-related personal items wouldn't be supported.

      1.3.2.3 **Non-Libyan entities:** The system is currently targeted toward users and businesses in Libya. International users or businesses wouldn't be included in the initial scope, but would be added in future expansion.

1.3.3. **<u>Not station-like audience:</u>**

    1.3.3.1 **Individuals under 18:** The system requires users to be legal adults to register and utilize its services.

    1.3.3.2 **Individuals without an internet connection or compatible device:** The system relies on internet access and mobile devices, so individuals without these wouldn't be part of the target audience.

    1.3.3.3 **Individuals not interested in cars:** The system focuses on the car industry, so individuals with no interest in cars wouldn't be a primary target audience.

1.5 Overview

    1.5.1 **Car Station:** A user-centric platform for managing car information, connecting with other car enthusiasts, and receiving personalized maintenance reminders.

    1.5.2 **Shop Station:** A point-of-sale (POS) system for shops to manage sales, inventory, and online presence, boosting their reach and efficiency.

    1.5.3 **Workshop Station:** An integrated ERP and POS system for workshops, enabling efficient workflow management, improved customer service, and optimized parts procurement.

    1.5.4 **Marketplace:** A customizable feed showcasing cars, workshops, scrapyards, and advertisements, facilitating buying and selling of car-related products and services.

    1.5.5 **Service Station:** The central hub connecting all stations, empowering car owners to find suitable workshops based on specialization, previous work, or similar repairs, and enabling workshops to source parts efficiently.

    1.5.6 **Data Station:** A central repository for storing and managing all system data, providing insights through AI analysis, statistical data, and web scraping to empower informed decision-making.

2.0 General Description

2.0.1 **Market Conditions:**

    2.0.1.1 **Internet Penetration:** Increasing internet access (reaching 70% of the population in Libya) fosters the adoption of software solutions to meet evolving needs.

    2.0.1.2 **Business Landscape:** While many businesses use social media (e.g., Facebook) and location services (e.g., Google Maps), they often lack the tools to fully leverage the potential of the internet.

2.0.2 **Technology Gap:**

    2.0.2.1 **Uninformed Customers:** Limited knowledge about technology makes finding suitable software solutions challenging.

    2.0.2.2 **IT Professional Opportunity:** This lack of awareness creates a market gap for readily accessible and affordable software solutions, with the car industry being a prime example.

2.0.3 **Market Needs:**

    2.0.3.1 **Workshop Management:** Existing solutions lack functionality for managing customer car repairs, hindering efficient workflow and customer service.

    2.0.3.2 **Shop Management:** Current practices, such as relying on social media for sales and marketing, are not sustainable for long-term growth.

2.0.4 Manual processes and limited technology usage create several challenges:

    2.0.4.1 Inefficient workshop operations Limited sales and marketing reach for shops have both lead to intangible losses in sales and customer base

    2.0.4.2 Difficulty in managing financial records leading to

    2.0.4.2 Lack of transparency and traceability in repair processes

Proposed Solution: Rabbeshly Station :)

- **Combines point-of-sale functionality** *with* **supply chain management features**.
- **Streamlined workflows:** Simplifies workshop operations and customer interactions.
- **Enhanced sales and marketing:** Offers online presence and customer engagement tools.
- **Improved data management:** Facilitates efficient record-keeping and financial management.

2.1 Product Perspective

Many established companies offer functionalities similar to different aspects of my proposed system, although none provide a fully encompassing solution like Rabbeshly Station. Here are what we manage to note:

    2.1.1 Garage Management Systems (GMS): These systems like **AutoLeap** and **Shop Boss** primarily focus on workshop management, providing features like appointment scheduling, job tracking, inventory control, and invoicing.

    2.1.2 E-commerce Marketplaces: Platforms like **eBay Motors, Autotrader** and **Copart** facilitate buying and selling cars, parts, may in the future expand to the Libyan market, However, they lack functionalities like workshop integration or repair history tracking.

    2.1.3 Social media platforms: Platforms like **Facebook Marketplace** can be used for buying and selling car-related items, but lack features specific to the car industry.

    2.1.4 Enterprise Resource Planning (ERP) Systems Solutions like **SAP** and **Oracle** offer broader functionalities for managing various aspects of a business, but are typically complex and expensive, making them less suitable for smaller businesses in the car industry.

A perspective many forget to take in consideration is future projects or under-development projects with similar functionalities.

    2.1.5 Emerging startups: Given the growing internet penetration, Libyan entrepreneurs might be developing similar solutions focusing on the Libyan market.

    2.1.6 Custom-developed software: Some shops or workshops at car dealerships might have opted for custom software solutions tailored to their specific needs made by another company.

2.2 Product Functions

2.2.1 Car Station:

2.2.1.1 Car Profile: Users can store car information, access personalized maintenance reminders, and connect with other car enthusiasts.

2.2.1.2 Suggestions & Tips: The system provides AI-powered suggestions and tips to help users maintain and preserve the value of their cars.

2.2.1.3 Car-Station Feed: Users can share news, pictures, and discussions about their cars within a car-centric social media platform.

2.2.2 Shop Station:

2.2.2.1 Shop Profile: Businesses can create online profiles to showcase their services, reach new customers, and boost their online presence.

2.2.2.2 AI-Driven Assistant: An AI assistant provides sales, purchasing, and inventory management insights to optimize business operations.

2.2.2.3 Online/On-Site POS & Management Tools: Users can access point-of-sale functionalities, manage sales data, employee accounts, inventory, and track sales performance.

2.2.3 Workshop Station:

2.2.3.1 **Workshop Profile:** Workshops can create online profiles to showcase their expertise, work history, and attract new customers.

2.2.3.2 **AI-Driven Assistant:** An AI assistant supports decision-making regarding parts pre-ordering, identifying suitable repair opportunities, and improving overall profitability.

2.2.3.3 **Online/On-Site POS & Management Tools:** Streamline workshop operations by managing repairs, providing customer estimates, tracking employee performance, and managing other relevant data.

2.2.4 Marketplace:

2.2.4.1 **Marketplace Feed:** Users can browse a customizable feed showcasing cars, workshops, scrapyards, and advertisements, facilitating buying and selling of car-related products and services.

2.2.4.2 **Online Payments:** The system can facilitate secure online payments for transactions within the marketplace (optional, depending on implementation).

2.2.5 Service Station:

2.2.5.1 **Service Station Platform Connectivity:** Connects all system components, allowing car owners to find suitable workshops based on various criteria and facilitating parts procurement for workshops from nearby shops or scrapyards.

2.2.6 Data Station:

2.2.6.1 **Data Station Platform Connectivity:** Provides centralized data storage and management for all system functionalities.

User Characteristics

2.1. <u>**Owners:**</u>

 2.1.1 <u>**Car Owners:**</u> Any entity, person or shop that owns a car.

 2.1.2 <u>**Shop Owners:**</u> Product selling owners, car parts or cars alike.

 2.1.3 <u>**Workshop Owners:**</u> Independent technicians or businesses.

 2.1.4 <u>**Scrapyard Owners:**</u> Person who operates or assists at operating the scrap yard.

2.2. <u>**Workers:**</u>

 2.2.1 <u>**Mechanics:**</u> Independent professionals whom are willing to be identified as a portable workshop.

 2.2.2 <u>**Workshop Mechanics:**</u> Professionals who work for a workshop owner and at a designated location.

 2.2.3 <u>**Scrapyards Mechanics/Workers:**</u> Individuals who run or work at scrapyards.

2.3 <u>**Businesses:**</u>

 2.3.1 **Auto Parts Stores:** Businesses specializing in selling new and used car parts and accessories.

 2.3.2 **Car Dealerships:** Businesses selling new and used cars.

 2.3.3 **Government Agencies:** Entities responsible for regulating and overseeing the car industry, such as transportation departments or environmental agencies.

2.4 <u>**Car Enthusiasts:**</u>

 2.4.1 **Car Enthusiasts:** Individuals with a strong passion for cars, including:

 2.4.2 **Modders:** Individuals modifying and customizing car appearance and performance.

 2.4.3 **Painters:** Professionals specializing in car painting and detailing.

 2.4.4 **Importers:** Businesses importing specialized car parts, modded cars, or unique car models.

 2.4.5 **Influencers:** Social media personalities sharing car-related content and experiences.

 2.4.6 **Event Organizers:** Individuals or organizations planning and hosting car shows, races, or other car-related events.

2.5 <u>**B2B Solution Seekers:**</u>

 2.5.1 **Insurance Companies:** Entities seeking data and insights to assess risk and optimize insurance offerings for the car industry.

 2.5.2 **Financial Institutions:** Banks and financial institutions looking for data-driven solutions to improve car loan and financing processes.

 2.5.3 **Data Analytics Companies:** Businesses seeking access to platform data for market research and trend analysis within the car industry.

 2.5.4 **Logistics Companies:** Businesses seeking optimized solutions for car transportation and parts delivery within the ecosystem.
 Constraints

2.4 General Constraints:

2.4.1 Hardware Constraints:

2.4.1.1 Device Requirements:

2.4.1.1.1 Minimum Phone Cost: All user roles (Owners, Shops, Workshops, Scrapyards) require a phone costing at least 1200 Libyan dinars (LYD) with an internet connection accessible at least once daily.

2.4.1.1.2 Touchscreen Devices: Workshops are encouraged to use touchscreen devices for improved user experience with the system functionalities.

2.4.1.1.3 Shops: Minimum specifications for Shop computers include 32-bit architecture, 6GB of RAM, a Core i3 processor (5th generation or newer), and Windows 8.1 or 10 operating system.

2.4.2 Software Constraints:

2.4.2.1 Performance and Scalability:

2.4.2.1.1 The system should operate efficiently on low-end devices with minimal features enabled to ensure accessibility for users with limited resources.

2.4.2.1.2 The platform should be built using **No-SQL databases** to accommodate the expected surge in data volume.

2.4.2.1.3 Programming with languages like Go and Rust is recommended to ensure fast system execution.

2.4.3 Integration and Data Acquisition:

2.4.3.1 The platform should seamlessly integrate with APIs from external websites and services to import and display relevant data and content.

2.4.3.2 Web scraping capabilities are required to extract data from various online platforms related to services and items within the car industry.

2.4.4 Compatibility:

2.4.4.1 The platform should be compatible with Windows 8, 10, and Linux operating systems.

2.4.4.2 Support for 32-bit architecture computers is necessary to ensure wider accessibility.

2.4.5 Interface Constraints:

2.4.5.1 **Identity Verification:**

The platform will implement two-factor authentication (2FA) using SMS messages via the "EASYSMS" service provided by "devs.ly".

Integration with the National Database is essential to verify the identity of sellers with relevant government organizations.

2.4.6 Regulatory Constraints:

The system development and operations will adhere to **Libyan Law No.4 of 1990** and any other relevant regulations.

2.4.7 Environmental Constraints:

    2.4.7.1 Scrapyards:

        Mobile device usage is preferred and encouraged due to the work environment. Computers should be located indoors and not exposed to the elements.

    2.4.7.2 Shops and Workshops:

        Touchscreens should be protected with appropriate covers to prevent damage. Access to the main computer should be restricted to authorized shop owners only. Computers should be equipped with reliable power supplies to minimize disruptions.

2.5 Assumptions and Dependencies:

    2.5.1 User Adoption:

    2.5.1.1 Shop Owners:

        2.5.1.1.1 High Reliance: Experienced shop owners with existing business challenges are assumed to be more receptive to the system's features and functionalities if presented clearly and offer a user-friendly on-boarding process. Additionally, shop owners who expect a direct return on investment (ROI) or a noticeable increase in sales and inventory management efficiency are more likely to adopt the system.

        2.5.1.1.2 Low Reliance: New, inexperienced, or opportunistic shop owners may be hesitant to invest due to:

            2.5.1.1.2.1 Limited capital: New businesses might prioritize other investments during the initial stages, putting software implementation on hold.

        2.5.1.1.3 Lack of understanding: Inexperienced owners might not fully grasp the system's benefits and may prioritize immediate profits over long-term value and improved customer experience.

        2.5.1.1.4 Free alternatives: Some owners might seek free, potentially ill-fitting solutions instead of investing in a tailored system.

    2.5.1.2 Scrapyard Owners:

        2.5.1.2.1 Low Reliance: Given the established and potentially multi-generational nature of scrapyard management, owners might be less likely to adopt a new system due to:

        2.5.1.2.2 Adherence to tradition: Familiarity with existing practices might lead to reluctance to embrace new technology.

        2.5.1.2.3 Limited system applicability: The platform's functionalities might not directly address all aspects of scrapyard operations, creating hesitation to invest.

2.5.1.3 Workshop Owners:

2.5.1.3.1 Medium Reliance: The workshop business model in Libya, often focusing on daily cash flow for families rather than comprehensive accounting practices, might influence system adoption:

2.5.1.3.2 Selective adoption: Workshop owners might primarily value features that enhance customer visibility and engagement, potentially disregarding functionalities requiring additional equipment investment.

2.5.2. Market Conditions:

2.5.2.1 Technology adoption: The overall rate of technology adoption within the Libyan car industry, especially among smaller businesses, could impact user acceptance of the system.

2.5.3. External Dependencies:

2.5.3.1 API integrations: The functionality of the system relies on seamless integration with external APIs like "devs.ly", National Database and T-lync. Any changes or limitations in these external services could require adjustments to the system.

2.5.4. Regulatory Environment:

2.5.4.1 Evolving regulations: New or changing regulations could necessitate modifications to the system to ensure compliance.

2.5.5. User Feedback:

2.5.5.1 Continuous feedback: User feedback throughout the development process and after deployment will be crucial to identify unforeseen challenges and potential needs not addressed by the initial requirements

3. Specific Requirements

3.0.1.1 Car Station Requirements:

    3.0.1.1.1 Car Profile:

        3.0.1.1.1.1 Add Car through filling a form #1

            introduction

        3.0.1.1.1.2 Add Car through taking pictures of it (see later sections for clarity) #2

        3.0.1.1.1.3 Add time of regular maintenance #3

        3.0.1.1.1.4 Add time and cost of heavy maintenance #4

        3.0.1.1.1.5 Add time and cost of Precautionary maintenance #5

        3.0.1.1.1.6 Add time and cost of Crash maintenance #6

        3.0.1.1.1.7 Add Car Specs #7

        3.0.1.1.1.8 Add Car additional pictures #8

        3.0.1.1.1.9 Add Car Special specs #9

        3.0.1.1.1.10 Add persistent issues or accidents #10

        3.0.1.1.1.11 Add Car chassis/vin number #11

        3.0.1.1.1.12 Display Total maintenance costs #12

        3.0.1.1.1.13 Display Car efficiency #13

        3.0.1.1.1.14 Display Car #14

        3.0.1.1.1.15 Share update to the Feed #15

    3.0.1.1.2 Suggestion and tips: to be supplied by Data Station and

            Service Station later #16

    3.0.1.1.3 Car Station Feed

        3.0.1.1.3.1 Share post to other platforms #17

        3.0.1.1.3.2 Comment, Like and re-share on your Car Profile #18

        3.0.1.1.3.3 Create new posts, add pictures from your car profile or from device,

            write caption, add tags #19

        3.0.1.1.3.4 Interact with posts from other platforms such as a Facebook Group

            from the same niche #20

3.0.1.2 Shop Station Requirements:

    3.0.1.2.1 Shop Profile:

        3.0.1.2.1.1 General Requirements of Shops:

            3.0.1.2.1.1.1 Add Shop Details through filling a form (1.2.1) #21

            3.0.1.2.1.1.2 Add Product/Car، sale price, name and cost (1.2.3) #22

            3.0.1.2.1.1.3 Add Categories of products (1.2.3) #23

            3.0.1.2.1.1.4 Import spreadsheet to add past sale data (1.2.3) #24

            3.0.1.2.1.1.5 Export sales and storage reports (1.2.3) #25

            3.0.1.2.1.1.6 Respond to customer inquiries of parts and prices (1.2.3) #26

            3.0.1.2.1.1.7 Make offers and flash sales (1.2.3) #27

            3.0.1.2.1.1.8 Add employees (1.2.1) #28

            3.0.1.2.1.1.9 Decide Employees permissions in shop system (1.2.1) #29

            3.0.1.2.1.1.10 Track productivity of each employee (1.2.3) #30

            3.0.1.2.1.1.11 Add Discount percent/flat

                amount to the purchase (1.2.3) #31

        3.0.1.2.1.2 Auto Parts Shop:

            3.0.1.2.1.2.1 Add shelf position of the products (1.2.3) #32

            3.0.1.2.1.2.2 Respond to customer inquiries of parts and prices (1.2.3) #33

            3.0.1.2.1.2.3 Manage storage and capital of products stored (1.2.3) #34

        3.0.1.2.1.3 Car Dealership shop:

3.1.2.1.3.1 Add car make, model and location of shipping (1.2.3) #35

3.0.1.3 Workshop Station Requirements:

    3.0.1.3.1 Workshop Profile:

        3.0.1.3.1.1 Add pictures of equipment (1.3.1) #36

        3.0.1.3.1.2 Add employees and technicians by name (1.3.3) #37

        3.0.1.3.1.3 Control employees/technicians access (1.3.3) #38

        3.0.1.3.1.4 Allow technicians to add their past expertise (1.3.3) #38

        3.0.1.3.1.5 Tech/employee record keep arrival of cars for repairs (1.3.3) #39

        3.0.1.3.1.6 Technician marks the start of diagnoses and repair (1.3.3) #40

        3.0.1.3.1.7 Technician/Car-Owner/Employee can order new/used parts through 1.5 #41

        3.0.1.3.1.8 Tech/employee marks the end of repair (1.3.3) #42

        3.0.1.3.1.9 Display the statistics of the workshop, per car, per make, per model, per repair #42

        3.0.1.3.1.10 Add cost of each repair for each make and model (1.3.3) (1.3.1) #43

3.0.1.4 Marketplace Requirements:

        3.0.1.4.1 Share product, offer, or owned car to the marketplace #44

        3.0.1.4.2 Add details of the posting #45

        3.0.1.4.3 Share posting on other websites #46

        3.0.1.4.4 Every user has its own market feed specialized to his owned car or business#47

3.0.1.4.5 Search with filters to look for the desired part or price #48

3.1 External Interface Requirements

3.1.1 User Interfaces

3.1.2 Hardware Interfaces

3.1.3 Software Interfaces

3.1.4 Communications Interfaces

3.2 Functional Requirements

3.2.1 <Functional Requirement or Feature #1>

3.2.1.1 Introduction

3.2.1.2 Inputs
3.2.1.3 Processing
3.2.1.4 Outputs
3.2.1.5 Error Handling

3.3 Use Cases

3.3.1 Use Case #1

3.3.2 Use Case #2

…

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3.5 Non-Functional Requirements

Non-functional requirements may exist for the following attributes. Often these requirements must be achieved at a system-wide level rather than at a unit level. State the requirements in the following sections in measurable terms (e.g., 95% of transaction shall be processed in less than a second, system downtime may not exceed 1 minute per day, > 30 day MTBF value, etc).

3.5.1 Performance

3.5.2 Reliability

3.5.3 Availability

3.5.4 Security

3.5.5 Maintainability

3.5.6 Portability