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**BACHELORS OF SCIENCE IN SOFTWARE ENGINEERING**

**Software Requirements Specification Document**

**For**

*MECHANIC FINDER WEB APPLICATION*

BY

**GROUP BSE22-20**

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**Software Requirements Specification**

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**Software Requirements Specification**

# Introduction

The introduction of the Software Requirements Specification (SRS) provides an overview of the entire SRS with purpose, scope, definitions, acronyms, abbreviations, references and overview of the SRS.

The purpose of this document is to define the Software Requirement Specifications (SRS) that explain the informational, functional, behavioural and operational aspects of a Mechanic Finder App (MFA) system.

The SRS describes in detail the design of a Mechanic Finder Application system that is augmented through Machine Learning models to automate the process by which the Car drivers can locate the nearest mechanic all over the entire country, thus reduce the amount of time taken for one to locate mechanics of different specialty incase ones car breaks down. It also serves as a basis and helps to create system design, system verification and validation procedures.

## Purpose

The purpose of the document is to collect and analyze all assorted ideas that have come up to define the system, its requirements with respect to consumers. Also, we shall predict and sort out how we hope this product will be used in order to gain a better understanding of the project, outline concepts that may be developed later, and document ideas that are being considered, but may be discarded as the product develops.

In short, the purpose of this SRS document is to provide a detailed overview of our software product, its parameters and goals. This document describes the project's target audience and its user interface, hardware and software requirements. It defines how our client, team and audience see the product and its functionality. Nonetheless, it helps any designer and developer to assist in software delivery lifecycle (SDLC) processes.

## Scope

Primarily, the scope pertains to the MFA features for making easy for drivers to locate nearby mechanics incase of breakdown. It focuses on the drivers(clients), the mechanics(repair service providers) and applications, which provide interfaces through which users can easily find nearby mechanics with in their locality.

This SRS is also aimed at specifying requirements of software to be developed but it can also be applied to assist in the selection of in-house and commercial software products. The standard can be used to create software requirements specifications directly or can be used as a model for defining a organization or project specific standard. It does not identify any specific method, nomenclature or tool for preparing an SRS.

## Definitions, Acronyms, and Abbreviations

|  |  |
| --- | --- |
| MFA | Mechanic Finder Application |
| FAQ | Frequently Asked Questions |
| CUA | Cost Utility analysis |
| RAID 5 | Redundant Array of Inexpensive Disk/Drives |

## References

The references are:

## Overview

The remaining sections of this document provide a general description, including characteristics of the users of this project, the product's hardware, and the functional and data requirements of the product.  General description of the project is discussed in section 2 of this document.  Section 3 gives the functional requirements, data requirements and constraints and assumptions made while designing the MFA system.  It also gives the user viewpoint of product.  Section 3 also gives the specific requirements of the product.  Section 3 also discusses the external interface requirements and gives detailed description of functional requirements.

# Overall Description

This document contains the problem statement that the current system is facing which is hardships in locating mechanic services in areas of little geographical knowledge. It further contains a list of the stakeholders and users of the proposed solution. It also illustrates the needs and wants of the stakeholders that were identified in the brainstorming exercise as part of the requirements workshop. It further lists and briefly describes the major features and a brief description of each of the proposed system.

The following SRS contains the detail product perspective from different stakeholders. It provides the detail product functions of MFA system with user characteristics permitted constraints, assumptions and dependencies and requirements subsets.

## Product Perspective

The MFA shall be a self-contained web application that will use the GPS location as well as an AI chat bot to pair the car owners to their nearest car mechanics anywhere in Uganda. The model will work in such a way that in case of a car breakdown, the car owner activates the GPS location while logged into the system enter the relevant car details, brand name, and this will bring a number of car mechanics nearer to where the car could have broken down.

## Product Functions

* Authentication: MFA shall allow the client to enter their personal and car details that will be used to the specific mechanic supposed to on a particular car.
* MFA shall asses the risk for the client as the repair charges.
* Registration: MFA shall allow the client to register and log in.
* Account Settings: The users will be change their passwords.
* MFA shall allow the mechanic to approve the request made by the car owner.
* Ratings: Car drivers will be able to rate the mechanics after the vehicle servicing.
* Delete Account Users can be able to delete their accounts anytime they wish.
* Listings: All available mechanics will be shortlisted on the system
* Calls: A car driver will be able to make a call to the mechanic after pairing onto the system.
* View User Dashboard: All our users will be able to view their dashboards and thence keep track of any changes on the system

## Operations

Our system shall do the data backups on the cloud through one of cloud service providers.

System updates and upgrades will be made during the less active hours when the system is less interactive for example at midnight, and this will enable our developers to make changes on the system without interrupting the normal business operations.

## User Characteristics

The vast growth of internet in Uganda characterized by fast internet speeds will create a better experience for both our drivers and the mechanics.

Most of the mechanics in Uganda are already in possession of smartphones, and launching our system on the web would give them a better experience in doing their work.

Most of the mechanics have a minimum of primary seven, level of learning, this enables them to easily comprehend the various features on the system.

## Constraints

### Corporate or regulatory policy constraints

* MFA shall operate as a web based application that is accessed from anywhere.
* The User interfaces of MFA will consist of green, white red colors.

# SPECIFIC REQUIREMENTS

**Introduction**

This subsection contains the requirements for the Mechanic Finder App .

Four types of users will be using this application that is;

*Admin:*

* The application will provide the login interface.
* Admin can view/add/update/delete mechanic and user information
* Admin can view all feedbacks posted by the users.

*Mechanic:*

* The application will provide login interface.
* The mechanic can view requests sent and feedback posted by the users regarding him

*Registered user:*

* The application will provide registration interface.
* The user can login into the system after providing registration details.
* User can search mechanics based on location and see Garage address details and posted feedback.
* The user can send a request to a mechanic and post feedback regarding him.

*Unregistered User:*

* User can search mechanics based on location and see Garage address details, etc.
* In order to send request to the mechanic, user is required to first register.

## Functionality

### **Take in user information.**

#### The system shall allow users to register and login as costumer and mechanic..

#### The system shall enable mechanics to input garage details.

#### The system shall allow users to give feedback.

### **Provide garage details.**

#### The system shall display detailed information about the selected garage.

#### The system shall provide browsing options to see product details.

### **Detailed Automobile Categorizations**

#### The system shall display detailed automobile categorization to the user.

### **Provide Garage Search facility.**

#### The system shall enable user to enter the breakdown problem text on the screen.

#### The system shall enable user to select multiple options on the screen to search.

#### The system shall enable costumer to fill in search criteria form

#### The system shall display only 5 matching results for nearby garages on the screen.

#### The system shall enable user to navigate between the search results.

#### The system shall notify the user when no matching garage is found on the search.

### **Maintain customer profile.**

#### The system shall allow user to create profile and set his credential.

#### The system shall authenticate user credentials to view the profile.

#### The system shall allow user to update the profile information.

### **Provide User Support.**

#### The system shall provide online help, FAQ’s customer support, and sitemap options for customer support.

#### The system shall allow user to select the support type he wants.

#### The system shall allow user to enter the detailed information for the support.

#### The system shall display the user support contact numbers on the screen.

#### The system shall allow user to enter the contact number for support personnel to call.

#### The system shall display the online help upon request.

#### The system shall display the FAQ’s upon request.

### **Email confirmation.**

#### The system may maintain customer email information as a required part of user profile.

### **Provide Garage rating option**

#### The system shall allow user to rate a garage after service from 1-5 star.

#### The system shall prompt user to provide a rating before using application again.

## Usability

### **Graphical User Interface**

#### The system shall provide a uniform look and feel between all the web pages.

#### The system shall provide use of icons and toolbars.

### **Accessibility**

#### The system shall provide handicap access.

#### The system shall provide multi language support.

## Reliability & Availability

### **Back-end Internal Computers**

#### The system shall provide storage of all databases on redundant computers with automatic switchover.

#### The system shall provide for replication of databases to off-site storage locations.

#### The system shall provide RAID V Disk Stripping on all database storage disks.

### **Internet Service Provider**

#### The system shall provide a contractual agreement with an internet service provider for T3 access with 99.99% availability.

#### The system shall provide a contractual agreement with an internet service provider who can provide 99.99% availability through their network facilities onto the internet.

## Performance

#### The product shall be based on web and has to be run from a web server.

#### The product shall take initial load time depending on internet connection strength which also depends on the media from which the product is run.

#### The performance shall depend upon hardware components of the client/customer.

## Security

### **Data Transfer**

#### The system shall automatically log out all users after a period of inactivity.

#### The system shall leave cookies on the user’s computer containing the user’s password.

#### The system shall not leave any cookies on the user’s computer containing any of the user’s confidential information.

### **Data Storage**

#### The user’s web browser shall never display a user’s password. It shall always be echoed with special characters representing typed characters.

#### The system’s back-end servers shall never display a user’s password. The user’s password may be reset but never shown.

#### The system’s back-end servers shall only be accessible to authenticated administrators.

#### The system’s back-end databases shall be encrypted.

## Supportability

### **Configuration Management Tool**

#### The source code developed for this system shall be maintained in configuration management tool.

## Design Constraints

### **Standard Development Tools**

#### The system shall be built using a standard web page development tool that conforms to either IBM’s CUA standards or Microsoft’s GUI standards.

### **Web Based Product**

#### There are no memory requirements

#### The computers must be equipped with web browsers such as Internet explorer.

#### The product must be stored in such a way that allows the client easy access to it.

#### Response time for loading the product should take no longer than five minutes.

#### A general knowledge of basic computer skills is required to use the product

## On-line User Documentation and Help System Requirements

### As the product is Online Mechanic Finder App System, On-line help system becomes a critical component of the system which shall provide –

### It shall provide specific guidelines to a user for using the MFA system and within the system.

### To implement online user help, link and search fields shall be provided.

## Interfaces

### There are many types of interfaces as such supported by the MFA system namely; User Interface, Software Interface and Hardware Interface.

### The protocol used shall be HTTP.

### The Port number used will be 80.

### There shall be logical address of the system in IPv4 format.

### **User Interfaces**

### The application GUI will provide menus, buttons, panes, containers, grids allowing easy navigation with fingers or pointing device

### The user interface for the software shall be compatible to any browser such as Internet Explorer, Mozilla or Netscape Navigator by which user can access to the system.

### The user interface shall be implemented using tools like PHP, HTML, JavaScript, CSS, among others Using The LARAVEL Framework

### **Hardware Interfaces**

Since the application must run over the internet, all the hardware shall require to connect internet will be hardware interface for the system. As for e.g. Modem, WAN – LAN, Ethernet Cross-Cable.

### **Software Interfaces**

1. The Mechanic Finder App shall be integrated with Google maps API.
2. System shall have front-end powered by HTML, PHP, CSS, JavaScript, and connected to a back-end by Python, PHP, MySQL, etc.
3. The system shall be integrated with chat bots.

### **Communications Interfaces**

The Mechanic Finder system shall use the HTTP protocol for communication over the internet and for the intranet communication will be through TCP/IP protocol suite.

## Applicable Standards

It shall be as per the industry standard.