VNR VJIET

Name of the Experiment:_____

Name of the Laboratory:

_____

Experiment No:_____Dates_____

Software Requirements Specification (SRS) :

Definition:

A software requirements specification (SRS) is a document that describes what the software will do and how it will be expected to perform. It also describes the functionality the product needs to fulfil all stakeholders (business, users) needs.

Purpose:

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 lays out the functional and non-functional requirements of a system that is used for describing the user interactions.

Template of SRS:

Contents

VNR VJIET

Name of the Experiment:_____

Name of the Laboratory:

_____

Experiment No:_____Dates_____

SRS FOR YULU APP:

1.Introduction

Yulu is a technology -driven mobility platform that enables Integrated Urban Mobility across public and private modes of transport. Using Micro Mobility Vehicles (MMVs) through a user-friendly mobile app, Yulu enables first and last-mile connectivity that is seamless, shared and sustainable.

1.1Purpose

This document is intended for the following group of people:-

- Product Manager
- Mobile App Developers (iOS/Android)
- Quality Assurance (QA) Engineers
- Data Analysts
- Project Manager

1.2.Scope

This document applies to the Yulu app.This software offers benefits such as bicycle and electric scooter rentals, booking and unlocking capabilities, payment integration, route planning, and safety measures. The target audience primarily consists of urban dwellers seeking eco-friendly alternatives to traditional transportation modes. Initially focusing on major metropolitan areas, the app has potential for expansion into suburban regions, tourist destinations, and international markets. Opportunities for growth lie in partnerships, ecosystem integration, and sustainability initiatives aimed at enhancing user experience and promoting environmentally conscious mobility solutions.

1.3 References

- **www.google.com**

1.4 Overview

Section 1.0 discusses the purpose and scope of the software.

Section 2.0 describes the overall functionalities and constraints of the software and user characteristics.

Section 3.0 and 4.0 details all the requirements needed to design the software.

2. The Overall Description

2.1 Product Perspective

The Yulu app is designed with a user-centric approach, focusing on simplicity, ease of use, and accessibility. It serves as a micro-mobility solution for short-distance urban commuting,

offering electric bikes and scooters as convenient alternatives to traditional transportation methods. Integrated with urban infrastructure, the app provides designated parking spots and charging stations for its electric vehicles, ensuring seamless operations and enhancing user

convenience. Emphasizing sustainability, Yulu promotes the use of electric vehicles as eco-friendly transportation options and may provide information about carbon emissions saved to raise awareness.

2.2 Product Functions

Product functions describe the capabilities and features of the Yulu system that fulfill user needs and objectives.

User Management

User Registration:
Allow users to create accounts on the Yulu platform using email, phone number, or social media accounts.
User Authentication:
Authenticate users securely during login using credentials provided during registration.
Implement password hashing and encryption to protect user accounts.
Profile Management:
Enable users to view and update their profile information, including contact details, payment methods, and communication preferences.
Vehicle Booking and Rental
Vehicle Locator:
Provide a map interface for users to locate nearby Yulu vehicles (bicycles, scooters).
Display real-time vehicle availability and distance from the user's current location.
Vehicle Reservation:
Allow users to reserve a vehicle for a specific duration through the mobile application.
Display reservation details, including vehicle location, reservation time, and unlock code.
Payment Processing
Payment Integration:
Integrate with payment gateways to process rental payments securely.
Support multiple payment methods, including credit/debit cards, mobile wallets, and net banking.
Invoicing and Receipts:
Generate invoices and receipts for rental transactions, providing users with a detailed breakdown of charges and payment status.
Trip Management
Trip Tracking:
Track trip duration, distance traveled, and route taken by users during their rental period.
Display trip history and statistics in the user's account dashboard.
Feedback and Rating:

Allow users to rate their ride experience and provide feedback on vehicle condition, ride quality, and overall satisfaction.
Use feedback to improve service quality and address user concerns.

Safety and Support

Safety Guidelines:

Provide safety instructions and guidelines within the mobile application, promoting safe riding practices and adherence to traffic regulations.

Customer Support:

Offer customer support channels (e.g., chat support, email support) for users to seek assistance, report issues, or provide feedback.
Ensure prompt response and resolution of user inquiries and concerns.

2.3 User Characteristics:

Experienced Users:

Experienced users are likely to swiftly locate nearby Yulu zones using the map feature and unlock bikes or scooters seamlessly. They may use the quick scan option for unlocking, having memorized the steps.
These users might use the app for regular commuting or short trips, utilizing features like saved routes or favorite locations for quick access.
They explore and utilize advanced features such as trip history to keep track of their rides, payment options for seamless transactions, and subscription services for frequent users.
experienced users are more likely to provide detailed feedback through the app, reporting any issues encountered during their rides, and suggesting improvements for a better user experience.

Inexperienced Users:

Inexperienced users start by downloading the app and registering for an account. They may need assistance in understanding the registration process and setting up payment methods.
These users spend more time exploring different features of the app, such as finding nearby Yulu zones, understanding how to unlock bikes or scooters, and familiarizing themselves with the interface.
Inexperienced users may go through a phase of trial and error, attempting to unlock bikes or scooters, understanding the rental process, and learning how to end their trips correctly.

2.4 Constraints

Constraints for the Yulu app can arise from various factors that may limit its functionality, expansion, or user experience. Here are some potential constraints:

1. Regulatory Compliance
2. Infrastructure Limitations
3. Battery Range and Charging
4. Weather Conditions
5. Maintenance and Serviceability

2.5 Assumptions and Dependencies:

Assumptions and dependencies describe factors that are assumed to be true or external conditions that may impact the development or operation of the system.

Assumptions:

User Connectivity:

It is assumed that users have access to a stable internet connection and compatible mobile devices to use the Yulu mobile application.

Regulatory Compliance:

It is assumed that the Yulu system complies with local regulations and licensing requirements for micro-mobility services in each operating location.

Vehicle Availability:

It is assumed that a sufficient number of Yulu vehicles (bicycles, scooters) are available for rental within designated service areas.

Dependencies:

Third-Party Services:

The Yulu system depends on third-party services such as mapping and navigation APIs, payment gateways, and communication platforms for key functionalities.

Hardware Components:

The operation of the Yulu system depends on the availability and proper functioning of hardware components installed on Yulu vehicles, including GPS trackers, electronic locks, and battery monitoring systems.

3. System Features

3.1 Functional requirements

1.UserRegistrationandAuthentication:

Users should register on the Yulu platform using their email, phone number, or social media accounts.Authentication mechanisms should ensure the security of user accounts.

2.Booking and Reservation System:

Users should be able to locate nearby vehicles using the mobile app.The app should allow users to reserve a vehicle for a specific duration.Users should receive confirmation of their reservation along with details such as vehicle location and unlock code.

3.Payment Integration:

The platform supports various payment methods, including credit/debit cards, mobile wallets, and payment gateways.Users are able to view their ride history and invoices within the application.

4.Navigation and Routing:

The application integrates with navigation services to provide users with optimal routes.Real-time navigation updates consider factors such as traffic conditions and road closures.

5.Safety Features:

The application provides safety instructions to users, including wearing helmets and following traffic regulations.

Users can be able to report safety concerns or issues during their rides.

6.Customer Support:

Users will have access to customer support within the application for assistance with reservations, payments, or other queries.
Support agents are able to assist users in real-time and resolve issues promptly.

4. External Interface Requirements

4.1 User Interface Requirements

The user interface (UI) requirements specify how users interact with the Yulu application.

- Registration and Login
- Users should be able to register and log in using email, phone number, or social media accounts.
- The interface should provide feedback on successful registration or login and handle authentication errors gracefully.
- Vehicle Locator
- The UI displays a map interface showing nearby Yulu vehicle locations.
- Users should be able to filter vehicles by type (bicycle, scooter) and view vehicle availability in real-time.
- Booking and Reservation
- Users should be able to select a vehicle, specify rental duration, and reserve it.
- The interface should display vehicle details, including battery level and estimated ride cost.
- Payment Integration
- Users should be able to add and manage payment methods securely.
- The interface should display transaction history and payment receipts.

4.2 Hardware Requirements

- Processor: Intel Core i5 or AMD Ryzen 5 (or higher)
- RAM: 8 GB (16 GB recommended)
- Storage: SSD with at least 256 GB capacity

4.3 Software Requirements

- Payment Gateway Integration
- The system should integrate with payment gateways to facilitate secure transactions.
- Integration should support various payment methods, including credit/debit cards, mobile wallets, and net banking.
- Mapping and Navigation Services Integration
- The application should integrate with mapping and navigation services to display vehicle locations and calculate routes.
- Integration with SMS and email services is necessary for sending notifications to users.

Vehicle Hardware Interfaces

- The system should interact with vehicle hardware components, such as GPS trackers and electronic locks, to enable functionalities like vehicle tracking and unlocking.

4.4 Regulatory Interfaces

Regulatory interfaces specify interactions with regulatory authorities or government agencies.

- Data Sharing
- The system should share data related to vehicle usage, safety compliance, and operational statistics with regulatory authorities.
- Compliance Reporting
- Interfaces should allow the system to report compliance with local regulations governing micro-mobility services.

5. Other functional requirements

Performance Requirements:

Response Time:

The system should respond to user interactions (e.g., booking, unlocking) within a maximum acceptable time frame (e.g., 2 seconds) to ensure a seamless user experience.

Scalability:

The system should be scalable to accommodate a growing user base and increasing demand for Yulu vehicles, ensuring performance remains consistent under varying loads.

Reliability:

The system should be highly reliable, with minimal downtime and service interruptions, to provide uninterrupted access to Yulu services for users.

Security Requirements

Data Protection:

User data stored in the system should be protected against unauthorized access, modification, or disclosure, complying with data privacy regulations.

Authentication and Authorization:

The system should enforce robust authentication mechanisms to verify user identities and ensure only authorized users can access Yulu services.

Secure Communication:

All communication channels between the Yulu system and client devices, payment gateways, and external services should be encrypted to prevent interception and tampering.

Usability Requirements

The system should comply with accessibility standards (e.g., WCAG) to ensure it is usable by individuals with disabilities, including support for screen readers and alternative input methods.

Compatibility Requirements

Device Compatibility:

The mobile application should be compatible with a wide range of devices and screen sizes, ensuring a consistent user experience across different platforms and devices.

Browser Compatibility:

System Monitoring:

The system should include monitoring tools to track performance metrics, detect anomalies, and proactively address issues to maintain optimal system health.

Software Updates:

Regular software updates and patches should be deployed to address security vulnerabilities, enhance functionality, and improve performance based on user feedback.

Regulatory Compliance Requirements:

Data Privacy Regulations:

The system should comply with data privacy regulations (e.g., GDPR, CCPA) governing the collection, storage, and processing of user data.

Local Regulations:

The system should adhere to local regulations governing micro-mobility services, including safety standards, parking regulations, and licensing requirements.