Software Requirements Specification (SRS) for Locate a Socket

1. Introduction

1.1 Document Purpose

The software requirements specification document presents "Locate a Socket" application with its functional and non-functional web application requirements. The documentation targets stakeholders with developers and project managers and testers who will participate in the application development cycle.

1.2 Product Scope

The web application "Locate a Socket" provides EV drivers with a solution to locate charging stations while traveling. It assists in the convenient use of EV chargers throughout their journeys. Through integrated location-based services the application helps EV drivers both find and access secure EV charging station payment methods.

1.3 Document Overview

The document has the following organizational structure:

Section 2: The overall description of Section 2 includes product perspective along with product functions and user characteristics and constraints and assumptions.

Section 3: The requirements receive their comprehensive definition under Section 3 together with external connection specifications and functional together with non-functional provisions.

Section 4: References.

1.4 Definitions, Acronyms, and Abbreviations

- **EV:** Electric Vehicle
- **API:** Application Programming Interface
- **GPS:** Global Positioning System

2. Overall Description

2.1 Product Perspective

As an independent user interface unit the "Locate a Socket" system connects EV drivers with networked EV charging stations. Ev charging station updates and navigation routing are provided through GPS data synthesis with station databases to give instant availability information together with route direction.

2.2 Product Functions

- User registration and login.
- Real-time GPS-based station locator.
- Charging station availability status.
- Secure payment.
- User profiles allow management of vehicle information together with other user settings.
- Reviewing and rating services from various charging facilities are available to users.

2.3 User Characteristics

Drivers: The owners of EVs who need free access to charging stations fall into the category of drivers.
Admins: Administration operators serve as managers who oversee the charging station database operations and user request handling.
Payment Processors: Financial institutions handling transaction processing

2.4 Constraints

- Compatibility with major mobile and web platforms (iOS, Android, Web browsers).
- Compliance with financial transaction security standards (PCI DSS).
- Dependence on GPS technology and mobile data connectivity.
- Continuous availability of GPS and internet services.

2.5 Assumptions and Dependencies

- Continuous availability of GPS and internet services.
- User registration demands registered email and valid payment information for completion.
- The system requires regular updates to database information for maintaining accuracy of charging station details.

3. Specific Requirements

3.1 External Interfaces

- **User Interface:** The system adopts a flexible web and mobile interface which operates across numerous devices with different display sizes.
- **Payment Gateway Integration:** The platform includes safe connectors for payment gateways which support Stripe or PayPal.
- **GPS Services:** Integration with mobile device location services.

3.2 Functional Requirements

- Users need the system to have an account creation function enabled through email and password authentication.
- The system displays nearby EV charging stations using current GPS locations.
- The system must show up-to-the-minute availability information for charging stations that users can access.
- The system must secure payment transactions by offering receipt generation to all users.
- Users will have access to a rating system for EV charging stations within the platform.

3.3 Non-Functional Requirements

- **Performance:** Capable of handling thousands of concurrent users without degradation of service.
- **Security:** The application must protect all stored data through encrypted storage methods which follow industrial encryption best practices.
- **Usability:** The application must provide a user interface which enables any unskilled person to operate it successfully.

4. Supporting Information

4.1 References

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