TASK 2.1P

Software Requirements Specification (SRS) for Locate a Socket.

1. **INTRODUCTION**
   - **1.1 Overview**

     The **"Locate a Socket"** web application is designed to assist electric vehicle (EV) drivers in locating nearby charging stations. The application uses real-time data and location-based services to ensure a seamless and simple user experience. Among the key functions are locating available stations, obtaining instructions, reading station information, and securely completing payment operations.
   - **1.2 Target Audience**

     This document is intended for the following stakeholders:
     - **Project Managers**: Project managers oversee the development process.
     - **Developers and Designers**: Software developers and designers are working on the solution.
     - **Quality Assurance Teams**: Application testing is done by teams responsible for quality assurance.
     - **Marketing Teams**: Marketing teams and stakeholders evaluate the company's potential.
2. **PURPOSE**
   - **2.1 Main goal**

     The application aims to:
     - EV drivers can have less range anxiety if charging stations are conveniently located.
     - Facilitate EV charging to encourage eco-friendly transportation.
   - **2.2 Specific Objectives**
     - Provide **real-time access** to charging stations to reduce wait times.
     - Offer **route optimization**, which locates the most practical charging station based on the user's location or travel route.
     - To simplify user transactions, enable **secure payment integration**.
     - **Display station details**, including price, kind of outlet, and amenities (e.g., nearby establishments like cafes or bathrooms).
   - **2.3 Advantages of EV Ownership**

     Advantages include:
     - **Time Efficiency:** Find charging stations as soon as possible.
     - **Convenience:** Real-time navigation and availability access.
     - **Security:** Use the application to make safe payments.
     - **Sustainability:** Take care of charging issues to promote EV adoption.

3. AUDIENCE

3.1 Target Users

- **EV Drivers:** EV drivers are the primary consumers searching for trustworthy charging options.
- **Charging Station Operators:** Charging station operators are businesses that manage and maintain charging stations and supply the system with real-time data.

4. OVERALL DESCRIPTION

4.1 Practicality

The app allows users to locate charging stations in the following ways:

- Search by current location using GPS.
- Search by planned travel routes.

4.2 Features and Operation

- **The Search Process Functionality**: Users can enter their destination or find their current location using GPS.
- **Data Display**: Details on charging stations, such as kind, price, and availability, are displayed.
- **Navigation**: Integrated maps guide users to the selected station.
- **Payment**: Secure payment gateways to manage charge transactions.

5. EXTERNAL INTERFACES

The program will communicate with the following:

- **Maps API**: For location-based and navigational services (such as Google Maps).
- **APIs for charging stations**: For up-to-date information on station availability.
- **Payment gateways**: PayPal and Stripe are examples of secure transactions.
- **User Interfaces**: User devices include PCs with responsive user interfaces, tablets, and smartphones.

6. SYSTEM FEATURES

6.1 Key Features

- **Search Functionality**: Use your current location or your planned route to look for charging stations.
- **Real-Time Availability**: Display the most recent data regarding station occupancy and availability.
- **Navigation**: Provide the chosen station with comprehensive instructions.
- **Payment Integration**: Enable secure payments for services that require payment.
- **Information about the station**: Show the type, price, and further features.

7. NON-FUNCTIONAL REQUIREMENTS

7.1 Performance

- The system must respond to user questions in less than two seconds.
- Oversee up to 10,000 users at once during busy times.

7.2 Security

- Verify that all communications are TLS/SSL encrypted.
- When processing payments, adhere to PCI DSS rules.

7.3 Reliability

- Ensure that critical features have 99.9% uptime.
- Make a daily backup of your data to prevent loss.

7.4 Usability

- An easy-to-use interface with a short learning curve.
- It is accessible to people with impairments since it complies with WCAG.

8. OTHER REQUIREMENTS

- **Regulatory Compliance**: Adhere to local regulations concerning EV charging infrastructure and customer data protection (such as the GDPR).
- **Multiple Language Support**: Allow users to select their preferred language.
- **Scalability**: Construct the system to accommodate future expansions, such as additional charging networks or international locations.

9. REFERENCES

- Google Maps API Documentation: https://developers.google.com/maps/documentation
- Stripe Payment Gateway: https://stripe.com/docs
- PCI DSS Standards: https://www.pcisecuritystandards.org/
- Web Content Accessibility Guidelines (WCAG): https://www.w3.org/WAI/