**TASK 2.1P**

**Software Requirements Specification (SRS) for Locate a Socket.**

1. **INTRODUCTION**
   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. **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.

1. **PURPOSE**
   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.
  1. **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).
  1. **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.

1. **AUDIENCE**
   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.

1. **OVERALL DESCRIPTION**
   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.
  1. **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.

1. **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.

1. **SYSTEM FEATURES**
   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.

1. **NON-FUNCTIONAL REQUIREMENTS**
   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.
  1. **Security**
* Verify that all communications are TLS/SSL encrypted.
* When processing payments, adhere to PCI DSS rules.
  1. **Reliability**
* Ensure that critical features have 99.9% uptime.
* Make a daily backup of your data to prevent loss.
  1. **Usability**
* An easy-to-use interface with a short learning curve.
* It is accessible to people with impairments since it complies with WCAG.

1. **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.

1. **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/>