| **Use Case ID** | **Use Case Name** | **Description** | **Actors** |
| --- | --- | --- | --- |
| UC1 | User Registration/Login | EV drivers create an account or log in using email or social accounts. | EV Driver |
| UC2 | Search Charging Stations | Search and view nearby charging stations on the map. | EV Driver |
| UC3 | Filter Stations | Filter charging stations by price, charger type, and availability. | EV Driver |
| UC4 | Book a Charging Slot | Reserve a spot at a chosen charging station. | EV Driver, Station Operator |
| UC5 | Make a Payment | Complete secure payments for booking charging slots. | EV Driver |
| UC6 | Receive Notifications | Get alerts for booking confirmations, reminders, and promotional offers. | EV Driver |
| UC7 | Update Station Info | Update station data such as availability, pricing, and charger status. | Station Operator |
| UC8 | Manage Platform | Oversee operations, handle user issues, and ensure platform uptime. | Administrator |

**SIT725 TASK 3.1P**

**Locate a Socket – Design Specification**

**1. Use Cases:**

**2. User Stories:**

| **As a…** | **I want to…** | **So that I can…** |
| --- | --- | --- |
| EV Driver | register/log in quickly using social accounts | start using the app without hassle |
| EV Driver | search nearby charging stations | find a place to charge my EV conveniently |
| EV Driver | filter stations by price and charger type | find an affordable and compatible charger |
| EV Driver | reserve a charging slot in advance | ensure there’s a spot available when I arrive |
| EV Driver | make a secure payment via card or wallet | pay for the charging service safely |
| EV Driver | receive booking and payment notifications | stay informed about my reservation status |
| Station Operator | update station information regularly | provide accurate data to EV drivers |
| Administrator | manage users and resolve issues | keep the platform reliable and trustworthy |

**3. User Requirements:**

| **Requirement ID** | **Requirement Description** |
| --- | --- |
| UR1 | The system shall allow users to sign up via email or social login. |
| UR2 | The system shall provide location-based search for nearby stations. |
| UR3 | The system shall allow filtering stations by price, type, and availability. |
| UR4 | The system shall enable users to reserve charging slots. |
| UR5 | The system shall support secure online payments (Stripe/PayPal). |
| UR6 | The system shall send notifications for bookings and payments. |
| UR7 | The system shall allow operators to update station information. |
| UR8 | The system shall provide an admin dashboard for platform management. |
| UR9 | The app shall work on both mobile and desktop browsers. |
| UR10 | The app shall encrypt user data and secure all communications (HTTPS) |

**4. Design Specifications**

**System Architecture**

• **Frontend**: Responsive web app (HTML, CSS, JavaScript, React/Vue)

• **Backend**: RESTful API (Node.js / Django)

• **Database**: Relational DB (PostgreSQL/MySQL)

• **Map Integration**: Google Maps API

• **Payment Gateways**: Stripe / PayPal API

• **Notifications**: Email (SMTP), SMS (Twilio)

**References**

1. Google Maps API Documentation – <https://developers.google.com/maps/documentation>
2. Stripe API Documentation –

<https://stripe.com/docs/api>

1. PayPal API Documentation –

<https://developer.paypal.com/docs/api/overview/>

1. GDPR Overview and Compliance –

<https://gdpr-info.eu/>

1. WCAG 2.1 Accessibility Guidelines –

<https://www.w3.org/WAI/WCAG21/quickref/>