

SIT725 – APPLIED SOFTWARE ENGINEERING

TASK 3.1P - Design

Use Cases

Use Case 1: Find Nearby Electric Sockets

- **Actor:** App User
- **Goal:** Locate the nearest electric sockets.
- **Steps:**
 1. Open the app.
 2. Enable location services.
 3. View a map displaying nearby sockets.
- **Success Condition:** User sees available sockets on a map.
- **Failure Condition:** Location services disabled, or no sockets nearby.

Use Case 2: Report a Faulty Socket

- **Actor:** App User
- **Goal:** Notify about a damaged or faulty socket.
- **Steps:**
 1. Open the app.
 2. Select a socket from the map.
 3. Click "Report Issue."
 4. Provide details and submit.
- **Success Condition:** Report is sent to the system administrators.
- **Failure Condition:** Network error or missing information.

User Stories

1. As a user, I want to see nearby sockets so I can charge my device when needed.
2. As a user, I want to report faulty sockets so they can be fixed quickly.
3. As a user, I want to contribute by adding new socket locations so that the app remains up to date.
4. As an admin, I want to view socket reports so I can maintain the service quality.
5. As an admin, I want to edit or remove outdated socket entries so that the database remains accurate.

User Requirements

Functional Requirements:

1. The app must use GPS to locate and display nearby sockets.
2. Users must be able to submit reports about socket conditions.
3. The app must allow filtering sockets based on type (e.g., USB, standard plug).

Non-Functional Requirements:

1. The app should work on both Android and iOS platforms.
2. Maps and results must load within 3 seconds for optimal user experience.
3. Data privacy must be ensured, with no location history stored.

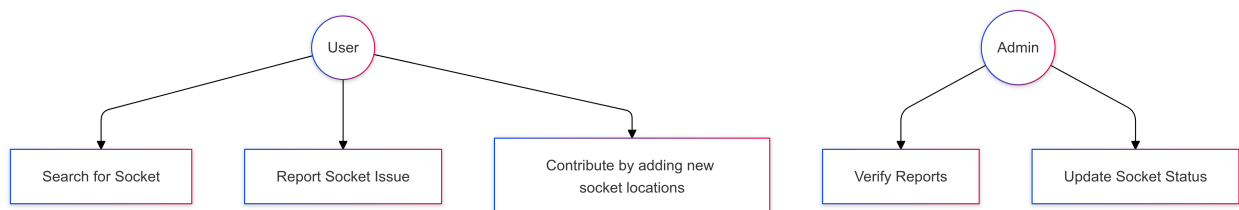
Additional Notes:

- The app will rely on third-party APIs (e.g., Google Maps API) for map integration and GPS services.
- Accessibility features (e.g., large text, voice commands) will be considered for inclusivity.

Design Specifications

a. Use Case Diagram

- **Actors:**
 - App User
 - Admin
- **System Components:**
 - Locate sockets on a map.
 - Report issues.



b. System Architecture

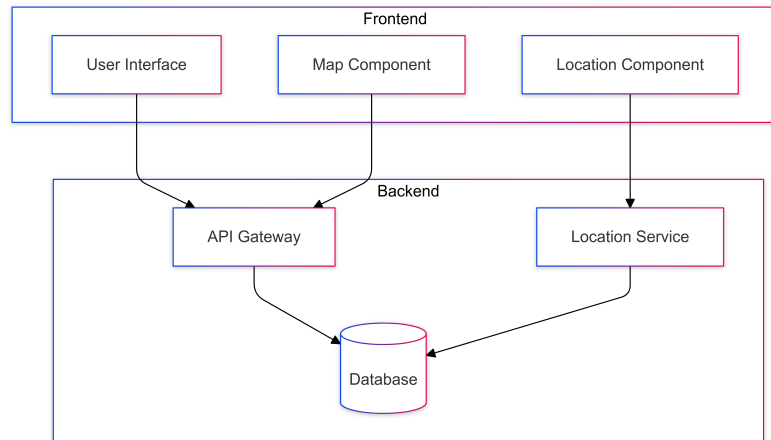
Components:

1. **Frontend:** Mobile app with interactive UI for locating sockets and reporting issues.

2. Backend:

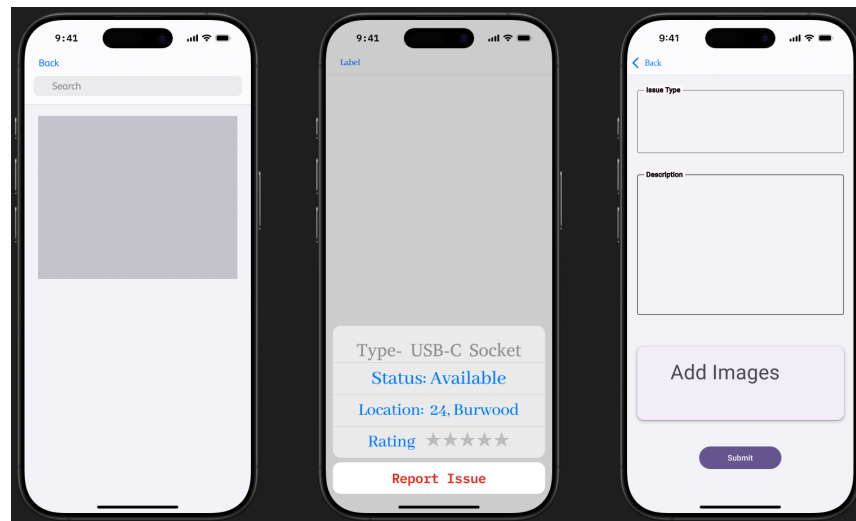
- Database to store socket locations and user reports.
- APIs to fetch data.

3. Third-party APIs: Google Maps API for location services.



c. Wireframe

1. **Home Screen:** Map interface with nearby sockets marked.
2. **Socket Details Screen:** Shows type and status of a socket, along with a "Report Issue" button.
3. **Report Screen:** Form to describe and submit socket issues.



References

1. IEEE. (2023). IEEE Standard for Software Requirements Specifications (IEEE 830-1998).
2. Agile Alliance. (2023). User Stories and User Story Examples.
3. International Organization for Standardization. (2023). ISO/IEC 25010:2011 Systems and software engineering.