Locate a Socket – Design Document

Task 3.1P – SIT725
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Date: 26 July

1. Introduction

The **"Locate a Socket"** app is designed to help users quickly find nearby electrical sockets or charging points in public locations. This document outlines the design aspect of the application, including **use cases**, **user stories**, **user requirements**, and **design specifications**, providing a clear view of how the application will function and interact with users.

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2. Use Cases

Use Case ID	Use Case Name	Description	Actors	Precondition	Postcondition
UC01	Locate Nearby Socket	Find sockets based on current location	User	GPS enabled	Sockets shown on map
UC02	Filter Sockets	Filter by type (USB, PowerPoint), availability, etc.	User	Socket list loaded	Filtered socket list displayed
UC03	Submit Socket Info	Submit location of a new socket	User	Logged in	Socket pending verification
UC04	Review Socket	Leave a review or rate a socket	User	Socket selected	Review posted

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3. User Stories

- **As a commuter**, I want to find nearby sockets at train stations, so I can charge my phone during travel.
- **As a student**, I want to see socket availability in libraries, so I don't waste time searching.
- **As a responsible user**, I want to contribute socket information, so the app stays updated for everyone.
- **As a traveler**, I want to filter sockets by type (e.g., USB), so I can use the right one for my device.

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4. User Requirements

Requirement ID	Description	Priority
UR01	The system shall display nearby sockets using GPS location.	High
UR02	Users shall be able to filter sockets by type, rating, or distance.	Medium
UR03	The system shall allow users to add new socket locations.	High
UR04	The system shall store user reviews and ratings.	Medium
UR05	The system shall ensure sockets are verified before going public.	Low

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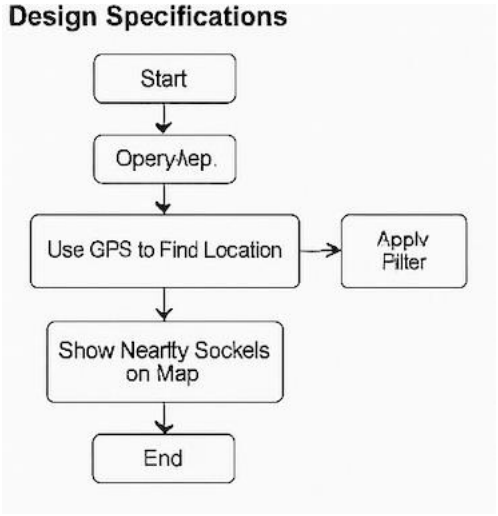
5. Design Specifications

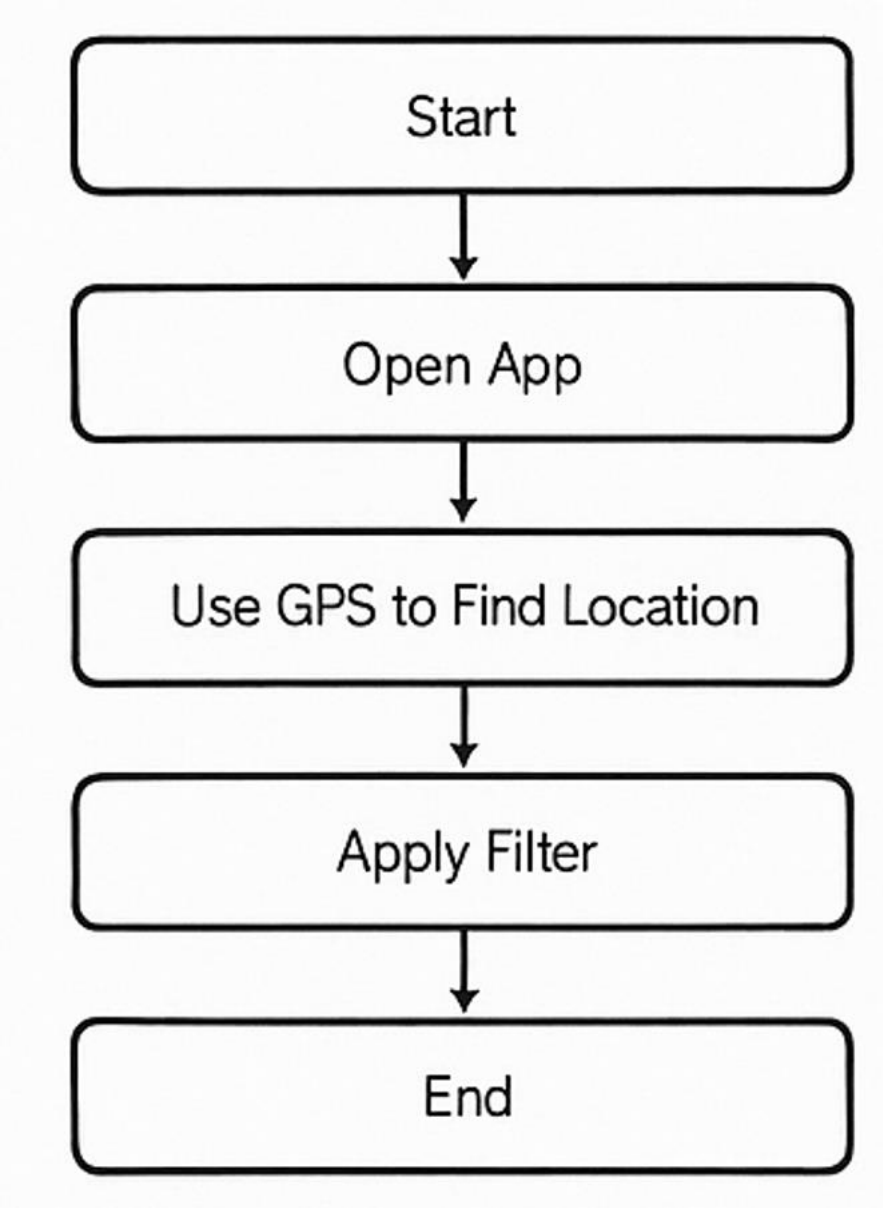


5.1 Interface Design Overview

Main Screens:

1. **Home Screen** – Map with nearby sockets
2. **Filter Panel** – Type, Rating, Availability
3. **Socket Details** – Location info + Reviews
4. **Add Socket** – Form + GPS + Photo Upload

5.2 Functional Flow Diagram



5.3 Architecture (Simplified MVP)

- **Frontend**: Flutter or React Native (cross-platform)
- **Backend**: Firebase or Node.js (Socket info, reviews, auth)
- **Map API**: Google Maps API
- **Database**: Firestore or MongoDB

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6. Connection to Previous SRS

This design corresponds to the system features described in Task 2.1P SRS, specifically:

- Functional Requirements FR1–FR5
- Non-functional Requirements: usability, availability

- User types: regular users, contributors

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7. Conclusion

The above use cases and design specifications provide a user-centric approach for developing the **"Locate a Socket"** application. With intuitive filtering, real-time location services, and community-sourced data, the app encourages collaboration and supports on-the-go charging needs.

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8. References

- Google Maps API Documentation. (2024). https://developers.google.com/maps
- Gonzalez-Mena, J., & Eyer, D. W. (2020). *Infants, toddlers, and caregivers: A curriculum of respectful, responsive, relationship-based care and education* (12th ed.). McGraw-Hill.
- Nielsen, J. (2021). *Usability heuristics for user interface design.* Nielsen Norman Group. https://www.nngroup.com/articles/ten-usability-heuristics/

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- Filtering sockets by type, and availability
- Submitting intormation, about sockets
- Leaving reviews or rating for sockets

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- Design correspondence FRI– F3 RS location
- Allowing users to filter sockets by type, or a distance
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6. Design Specifications

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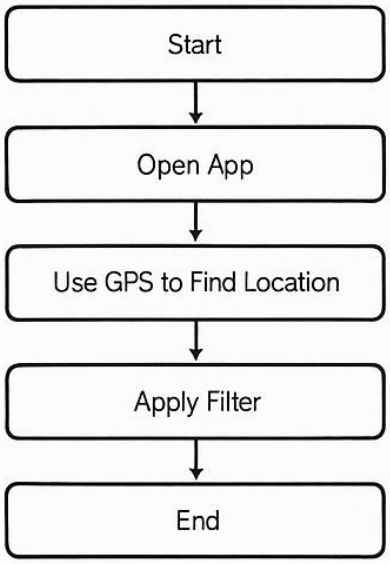

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- FRI–FRS Functional Requ- irements, usability
- User types: eonfrubutor

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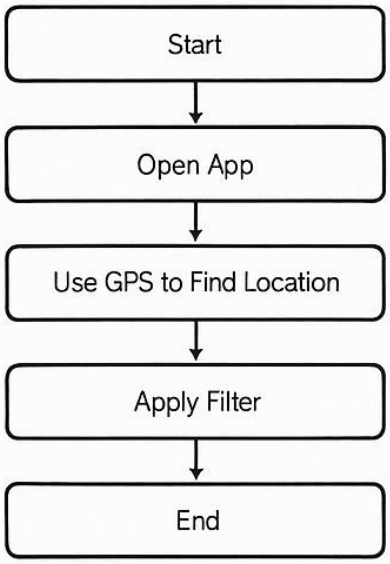

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