Software Requirements Document (SRD)

NOTE: THIS IS NOT A DELIVERABLE. IT IS TO COME AT A COMMON UNDERSTANDING

Project Title: AI-Enhanced Mobility Platform for MobilityCorp

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# 1. Introduction

## 1.1 Purpose

This document outlines the software requirements for a new architecture for MobilityCorp’s mobility rental platform, incorporating AI functionality where appropriate. The goal is to address key business challenges, improve customer satisfaction, and optimize fleet operations.

## 1.2 Scope

MobilityCorp provides short-term rentals for last-mile transport including electric scooters, eBikes, electric cars, and vans. The platform operates in multiple urban and suburban locations across the EU and must support multi-language and multi-currency capabilities.

# 2. Business Overview

MobilityCorp enables customers to rent vehicles via a mobile application. The fleet includes:

- Electric Scooters  
- eBikes  
- Electric Cars and Vans

## 2.1 Booking Rules

- Cars and Vans:  
 - Bookable up to 7 days in advance  
 - Fixed duration rentals  
  
- Scooters and Bikes:  
 - Bookable up to 30 minutes in advance  
 - Open-ended rentals (up to 12 hours)

## 2.2 Payment Model

- Per-minute billing  
- Fines for:  
 - Late returns  
 - Returning vehicles to incorrect locations

# 3. Functional Requirements

## 3.1 Vehicle Management

- GPS tracking for all vehicles  
- Remote unlock capability  
- NFC-based smartphone app for locking/unlocking  
- Remote disable capability for cars and vans

## 3.2 Booking System

- Support for advance and short-term bookings  
- Real-time availability tracking  
- Duration-based booking logic per vehicle type

## 3.3 Return Process

- Mandatory return to designated parking spots  
- Photo proof submission by customers  
- EVs (cars and vans) must be plugged into chargers  
- Customer feedback collection (including fault reporting)

## 3.4 Charging and Distribution

- Battery swap alerts for bikes and scooters  
- Staff routing for battery swaps and vehicle redistribution  
- Identification of high-demand locations

# 4. Business Challenges

- Vehicles are often not available where customers need them  
 - Need to predict demand and anticipate customer needs  
  
- EVs frequently run out of charge  
 - Need to prioritize battery swaps and charging schedules  
  
- Most usage is ad-hoc  
 - Desire to increase regular usage (e.g., daily commutes)

# 5. Non-Functional Requirements

- Scalability: Support for growing fleet and geographic expansion  
- Localization: Multi-language and multi-currency support  
- Security: Secure access, data protection, and remote control features  
- Availability: High uptime and reliability for booking and vehicle control  
- Performance: Real-time responsiveness for booking and tracking

# 6. Constraints

- All vehicles must be GPS-enabled  
- Customers must use NFC-capable smartphones  
- Vehicles must be returned to designated spots with photo proof  
- EVs must be charged upon return  
- Staff must manage battery swaps and vehicle redistribution manually

# 7. Assumptions

- Customers have access to smartphones with NFC  
- Staff are equipped with vans for redistribution and battery swaps  
- Vehicles are equipped with necessary hardware for remote operations