ARWayz – AR Navigation App

Author: EG/2022/5435
Date: 23-10-2025
Version: 1.0

1. Introduction

Purpose:
The purpose of this document is to define the functional and non-functional requirements of ARWayz, an AR-based navigation application for indoor and outdoor use.

Scope:
ARWayz aims to provide seamless navigation using AR overlays for users in campuses, cities, or buildings, helping them find locations quickly and intuitively.

2. Research Findings

App	Core Features	UX Strengths	UX Pain Points
AR City	Outdoor AR navigation, route visualization	Clear AR markers, intuitive map UI	AR markers can be hard to read in sunlight
ARWay	Indoor navigation, AR overlays, building maps	Accurate indoor positioning	Requires strong Wi-Fi; limited map coverage
Google Maps Live View	Outdoor walking directions with AR guidance	Reliable data, familiar UI	Limited indoor support; occasional GPS errors

Summary of Findings:

- Existing apps work well for outdoor navigation, with clear AR markers and real-time updates.
- Indoor navigation is still limited and often requires Wi-Fi or BLE beacons.
- Users face issues with marker visibility, slow AR updates, and difficulty finding specific rooms or smaller landmarks.

3. User Problems / Needs

- Difficulty navigating indoors and finding specific rooms/buildings.
- Delays in AR marker rendering causing confusion.
- Inconsistent accuracy for indoor positioning.
- Lack of personalization, such as saving frequently visited locations.

4. Functional Requirements

1. The app shall provide AR-based navigation for **indoor and outdoor locations**.
2. The app shall allow users to **search for buildings, rooms, or landmarks**.
3. The app shall **update routes in real-time** if the user deviates.
4. The app shall allow users to **save favorite locations or "wishlist"**.
5. The app shall provide **step-by-step navigation directions**.
6. The app shall support **both GPS (outdoor) and QR (indoor) positioning**.

---

5. Non-Functional Requirements

1. The app shall **provide a clean, intuitive, and consistent user interface for easy navigation**.
2. The app shall **use a responsive design that adapts to different screen sizes and resolutions**.
3. The app shall be **compatible with Android devices**.
4. The app shall maintain **user privacy**, collecting only necessary data.
5. The app shall provide **smooth AR rendering without lag**.
6. The app shall handle **up to 500 concurrent users** without performance issues.
7. The app shall support **maintain a modern and visually appealing UI following consistent color schemes and icons**.

---

6. Optional Features

- User **sign-in** with email or social login (optional)
- Personalized **favorites / recent locations / wishlist**
- Notifications for **nearby points of interest**
- Option to **download maps for offline use**

---

7. References

- AR City App: https://www.arcity.com
- ARWay App: https://www.arway.io
- Google Maps Live View: https://www.google.com/maps
- AR Navigation Research Paper: "Augmented Reality Indoor Navigation," IEEE 2022