

AR Campus Navigation – Product Backlog

EPIC 1: Research & Requirement Analysis

Goal: Understand user needs and define the system scope.

ID	User Story	Description	Priority	Sprint
US1	As a researcher, I want to analyse existing AR navigation apps so that I can identify useful features.	Study apps like ARWay, Google Maps Live View.	High	Sprint 1
US2	As a designer, I want to identify user challenges in campus navigation so that I can address them in my app.	Conduct user interviews/surveys.	High	Sprint 1
US3	As a project member, I want to document functional and non-functional requirements to finalize the system scope.	Create the requirement specification document.	High	Sprint 1

EPIC 2: System Design & Architecture

Goal: Plan system components and data flow.

ID	User Story	Description	Priority	Sprint
US4	As a developer, I want to design the system architecture diagram so that I can visualize module interactions.	Mobile app, backend, AR module.	High	Sprint 2
US5	As a developer, I want to define a database schema for POIs so that I can store campus data effectively.	Example: {id, name, lat, long, description, image, type}	High	Sprint 2
US6	As a backend developer, I want to design API endpoints to fetch and send POI data.	Endpoints: /getLocations, /getPOIInfo.	High	Sprint 2

EPIC 3: UI/UX Design

Goal: Create an intuitive user interface for easy navigation.

ID	User Story	Description	Priority	Sprint
US7	As a user, I want a clean and simple home screen so that I can easily start navigation.	Figma prototype – “Start Navigation”, “Map View”.	High	Sprint 2
US8	As a designer, I want to create AR overlay designs to show directions and POI details.	Icons, arrows, distance labels.	Medium	Sprint 2
US9	As a user, I want a search bar to find specific campus locations quickly.	Implement search + filter options.	High	Sprint 3

EPIC 4: AR Navigation (Outdoor)

Goal: Enable AR-based outdoor guidance using GPS and camera.

ID	User Story	Description	Priority	Sprint
US10	As a user, I want to see AR arrows overlaid on the real world to guide me to my destination.	Use Unity with Vuforia/ARCore for overlay.	High	Sprint 3
US11	As a user, I want to view distance and direction dynamically updated as I move.	GPS + Compass data integration.	High	Sprint 3
US12	As a user, I want to view the shortest path between two campus locations.	Pathfinding (Google Maps API).	High	Sprint 3

EPIC 5: Indoor Navigation (QR-based)

Goal: Provide indoor navigation using QR codes.

ID	User Story	Description	Priority	Sprint
US13	As a user, I want to scan QR codes placed in buildings to get indoor directions.	Use camera to scan QR → display path in AR view.	High	Sprint 4
US14	As an admin, I want to register and manage QR codes for building locations.	Backend to upload and manage QR data.	Medium	Sprint 4
US15	As a user, I want to see my current indoor position after scanning a QR code.	Display “You are here” marker.	High	Sprint 4

EPIC 6: Map & Location Management

Goal: Show map view with Points of Interest (POI).

ID	User Story	Description	Priority	Sprint
US16	As a user, I want to view a 2D/3D map of the campus.	Map integration using Google Maps API.	High	Sprint 3
US17	As a user, I want to tap a building to see details (name, type, image).	Info popup with AR + text.	Medium	Sprint 3
US18	As an admin, I want to add new POIs to the database.	Firebase CRUD for POIs.	Medium	Sprint 4

EPIC 7: Backend & Database

Goal: Store and manage data efficiently.

ID	User Story	Description	Priority	Sprint
US19	As a developer, I want to set up Firebase for authentication and data storage.	Firebase Realtime DB or Firestore.	High	Sprint 2
US20	As a backend dev, I want to implement APIs for retrieving campus data.	Firebase Cloud Functions or REST API.	High	Sprint 3
US21	As a user, I want my favorite places saved in my account.	User profile with saved POIs.	Low	Sprint 5

EPIC 8: System Integration

Goal: Connect all modules for smooth performance.

ID	User Story	Description	Priority	Sprint
US22	As a developer, I want to integrate AR module with location data.	Link Unity + Flutter + Firebase.	High	Sprint 4
US23	As a tester, I want to check AR rendering and GPS accuracy.	Device testing around campus.	High	Sprint 5
US24	As a user, I want offline mode to see basic map data.	Cache previous data.	Medium	Sprint 5

EPIC 9: Admin Panel

Goal: Enable admin to manage campus data.

ID	User Story	Description	Priority	Sprint
US25	As an admin, I want to log in to manage campus locations.	Firebase Auth + dashboard.	Medium	Sprint 5
US26	As an admin, I want to upload images and details of each POI.	Image upload (Firebase Storage).	Medium	Sprint 5

EPIC 10: Testing, Deployment & Maintenance

Goal: Ensure app quality and make it available to users.

ID	User Story	Description	Priority	Sprint
US27	As a tester, I want to perform functional and usability testing.	Test AR navigation, QR scanning, map accuracy.	High	Sprint 5
US28	As a user, I want to install the app from Play Store.	Flutter build + publishing.	Medium	Sprint 6
US29	As a team, I want to collect user feedback and make improvements.	Feedback form + version updates.	Medium	Sprint 6

BONUS FEATURES

ID	Feature	Description
US30	Voice-guided navigation	Use text-to-speech for directions.
US31	Augmented points of interest	Add fun AR models for landmarks.
US32	Multi-language support	English + Sinhala + Tamil.
US33	Accessibility mode	Larger text and contrast options.