

Case Study

Mobile & Web Indoor Mapping & Navigation App

For asset tracking & wayfinding across the healthcare facility



PROJECT OVERVIEW

A leading indoor mapping service provider wanted to simplify and speed-up asset tracking & indoor navigation for their healthcare client. They were looking for a reliable tech partner to integrate IoT capabilities with their indoor mapping and navigation application.



Capability
IoT
Application



Industry
Healthcare



Country
UK

KEY FEATURES

We developed native mobile apps for patients for seamless navigation, and a web application for the medical staff to track assets.

Digital Map

Allows patients & visitors to quickly navigate across the network of services, patient rooms, pharmacy & other medical amenities

Tracking of Used & Idle Assets

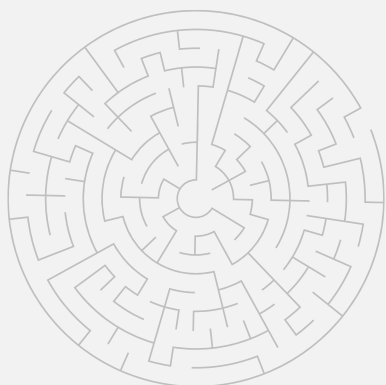
Enables medical staff to locate & mobilize wheelchairs, stretchers, infusion pumps, ventilators, pacemakers

Access Control

Enforce role-based access for the staff depending on hierarchy & confidentiality.

Voice-activated Navigation

Guides users to their desired destination with easy-to-follow voice directions while accurately displaying the position & distance of the equipment or location.



CHALLENGES

- No mechanism for admin staff to track the hospital's movable assets & inventory
- Lack of visibility for the nursing staff to search & filter available medical assets for utilization in the need of the hour
- Inaccurate maps & manual floor plans resulted in difficulties for visitors to navigate through the facility

SOLUTION

We took an iterative approach to implement the Real-time Location System ([RTLS](#)) with IoT capabilities. In the first phase, we developed native mobile apps for both Android & iOS platforms. In the second phase, a web application with IoT capabilities to manage the back-end operations to monitor & communicate for equipment inventory & employee tracking.

Asset tracking

We installed BLE tags to track medical equipment via the web application. They triangulate the signal for device location in real-time. This enabled the nursing staff to stay on top of high-value equipment, usage history & other data for optimized use of resources.

Floor mapping

Our team converted the existing floor plan in the XML- based vector image format to interactive 2D maps. It would allow complete digitalization of the physical space while providing a foundation layer for Asset Tracking and Wayfinding.

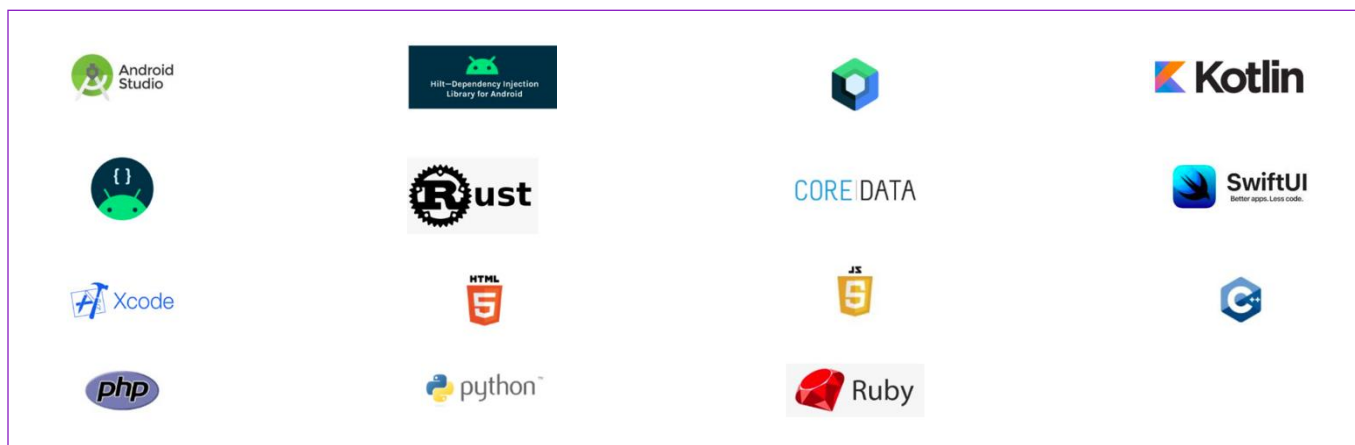
Implementing an AI-based Routing System

We utilized RUST to collect and interpret data from different sources to create accurate indoor maps. To determine optimal routes, we used the [shortest path algorithm](#) based on heuristic methods. It ensures that the indoor maps are always up-to-date and match the actual terrain. This was with voice-based search to provide recommendations & directions.

Geo-zone Placement

We enabled seamless integration with GPS maps & medical solutions that use indoor floor plans. Our team developed geofence objects & implemented them with logic-flow-driven alerts (enter and exit a geo zone). Further by aligning the LAT/LONG coordinates, we provide real- world placement of medical inventory.

TECHNOLOGIES & TOOLS



Outcomes

50%

reduction in the time spent on navigating a complex healthcare facility

100%

visibility into medical assets for optimum utilization & future planning

100%

control over hospital resources accessibility by visitors and staff

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