navenio

> **Releasing hospitals from the constraints of infrastructure enables compelling user experiences**
>
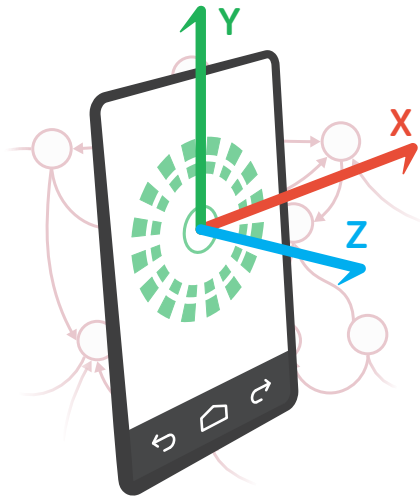> **Dr Harpreet Sood,
> Former NHS England Deputy CCIO**

Navenio's AI-led location-based solutions help to transform workflow in hospitals by enabling confirmation of team members' movements, both past and present, to inform decision-making and facilitate location being integrated into existing apps & platforms.

Underpinned by award-winning University of Oxford science, Navenio has pioneered easy to deploy, accurate, scalable and robust indoor location-based solutions that works where GPS does not. Enabled simply by using sensors in smartphones with no need for investment in new infrastructure.

Key

● People
● Assets

SMART RTLS with no infrastructure

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Innovate UK
Technology Strategy Board

NHS

BT

Sodexo

serco

mitie

Cognizant

KPMG
British Tech Pioneer 2020
FINALIST

Women in IT
AWARDS
CTO of the Year
WINNER

Infrastructure-free Localisation using just a Smartphone

AI-Powered Motion Tracking

- Robust odometry across people, trolleys and vehicles
- Uses IMU data from a smartphone's sensors for navigation
- PDR algorithms adjust for the different ways a smartphone is held and overcome sensor noise to derive accurate user movement
- Deep learning based pose estimation can use inertial data only (acceleration and gyroscope) for continuous asset tracking – e.g. for trolley motion estimation
- In environments where both inertial and camera data are available, deep learning visual inertial odometry approaches offer low drift odometry for vehicles and robots, as well as for people using VR/AR applications

Award-winning Map Matching

- Patented map matching algorithms constrain a user's odometry to the features of the map
- Works with noisy trajectories and floorplans where changes may have occurred

Indoor-outdoor Detection

- Uses a fusion of inertial, GPS and Wi-Fi data to accurately detect the time/place of entry and exit into a building
- Algorithms work when we do or do not have knowledge of the location of entry/exit points

Multi-floor Localisation

- Algorithms can localise people across multiple floors without prior knowledge of floor change transitions
- Using pressure, inertial and signal map data, Navenio's technology identifies floor change transitions and what floor a user is moving to

3D Localisation without Maps

- Experience maps are built via crowdsourcing users' movements using inertial, pressure, Wi-Fi, BLE and GPS data
- Using a Wi-Fi or BLE scan, Navenio can detect the 3D location of a user or asset on an experience map
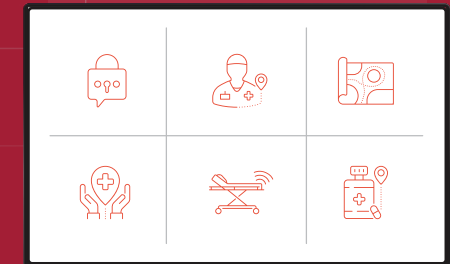
How it works in your environment

Our technology has multiple applications and can be integrated into different platforms to provide details of staff location, presence, movements and audit trails, for use with applications such as secure messaging, nurse communications or patient flow applications, for example.

- Simply requires users to carry a smartphone device running the Navenio Location App – no need for any user interaction

- The Navenio Location App provides a continuous trace of a user's movements

- GPS geofences ensure location tracking is shutdown outside the hospital, and vice-versa

- Data is processed in our secure cloud

- Location data includes regions/zone information configured at set-up e.g. ward/corridor name

- Near real-time XML/HL7/FHIR or similar feed to an integration engine or app that has an RTLS interface

- Integration with SSO solutions enables user details to be provided without the need for a separate login for the Navenio Location App
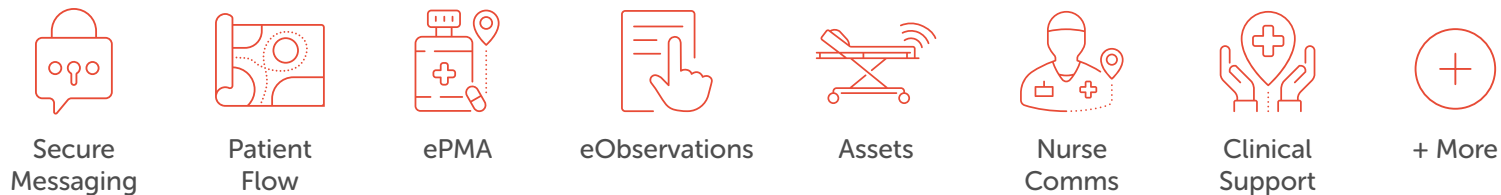
Mobile App with Navenio Indoor Location Technology

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Smart RTLS Cloud

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- Interoperable
- Infrastructure-free
- Secure
- Your workflow
- Your apps

XML | HL7® FHIR®

Your Apps & Platforms

For use within a wide variety of apps/platforms and workgroups...

Secure Messaging

Patient Flow

ePMA

eObservations

Assets

Nurse Comms

Clinical Support

+ More

Book a demo

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Integration friendly

Navenio's technology is available as a standalone solution or as part of your interoperable environment. Navenio's modular system supports multiple standards including HL7 / FHIR, as well as bespoke integration where required

Privacy & Security

Privacy and security are inherent in Navenio technology and we are committed to protecting all confidential data. Navenio is Cyber Essentials certified, NHS Data Security and Protection Toolkit, and GDPR compliant

NHS Digital toolkit

CYBER ESSENTIALS CERTIFIED PLUS

Navenio has a wider range of products and services beyond ILS:

Intelligent Workforce Solution: unlocks significant improvements in the efficiency and workflow of staff and teams through automation that is carefully driven from real-world best practice - ensuring right person, right place, right time.

OEM: our location technology can be integrated into multiple apps and platforms. The Navenio OEM model gives access to our IP, know-how, APIs, and relevant algorithms, all supported by Professional Services from our team of experts

Built from Experience - Applicable Anywhere

Navenio's experience in dealing with some of the most complex structures, for example a 5000+ room hospital, ensures that our technology can be used effortlessly in any type of building and applied to any sector globally

Smart City	New Retail	Logistics	Hospitality	Healthcare

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Built on Award-Winning University of Oxford Science

Our academic founder, Professor Niki Trigoni has been a long-standing Professor of Computer Sciences at the University of Oxford. Her years of work in Oxford's Cyber Physical Systems group, which she founded, has won several awards. She also co-directs the Centre for Doctoral Training in Autonomous and Intelligent Machines and Systems. Her work has led to 145 publications, including several best paper awards, and serving on the Technical Program Committee of major conferences in the field of Indoor Location.

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