

# GNSS-Powered Accessibility for the Visually Impaired in Stockholm



## Background

Stockholm piloted an innovative Global Navigation Satellite System (GNSS), a satellite-based navigation system, to support blind and partially sighted persons in navigating city spaces independently.

The system uses GNSS augmented with tactile infrastructure and streamed audio instructions via a mobile app. This initiative is part of the city's broader strategy of inclusive smart-city technology.

## Key Activities

- The project combined precise satellite data with tactile ground paths and a mobile app that offers spoken directions. Locations of interest and orientation cues are provided via voice prompts.
- The system was co-designed with users with visual impairments and tested in real-life urban environments.

## Impact

**Enhanced accessibility:** Visually impaired users can travel independently with greater confidence. Users reported increased autonomy and a stronger sense of safety.

**Recognition:** The model attracted interest from other cities exploring accessible navigation.

## Challenges & Solutions

High-rise buildings and adverse weather affected the signal's reliability. To address this, developers built redundancy into the app, using Wi-Fi and sensor data when GPS dropped.



## Tips for Similar Projects

- Use multiple localisation methods. Employ hybrid localisation to offset GNSS limitations in built environments.
- Involve users directly in iterative testing and design.
- Ensure redundancy in navigation support, especially under variable weather.



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## Identified Limitations/Weaknesses

- GNSS alone can be unreliable in some urban settings, where signal quality may fluctuate. Therefore, hybrid systems are essential.
- In addition, sustained deployment requires careful maintenance of tactile infrastructure and accurate localisation.

## Resources/Links

- [Stockholm GNSS Story – Eurisy](#)

## Partners



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