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# ARGUS Assisting Personal Guidance System for People with Visual Impairment

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**Duration:** 2011-2014

**Objective:** ARGUS project focuses onto a satellite based navigation (GNSS/ EDAS) terminal for people with impaired visually capabilities, guiding them along pre-defined tracks.

**Role:** CEIT is the knowledge and technology providers, support in dissemination.

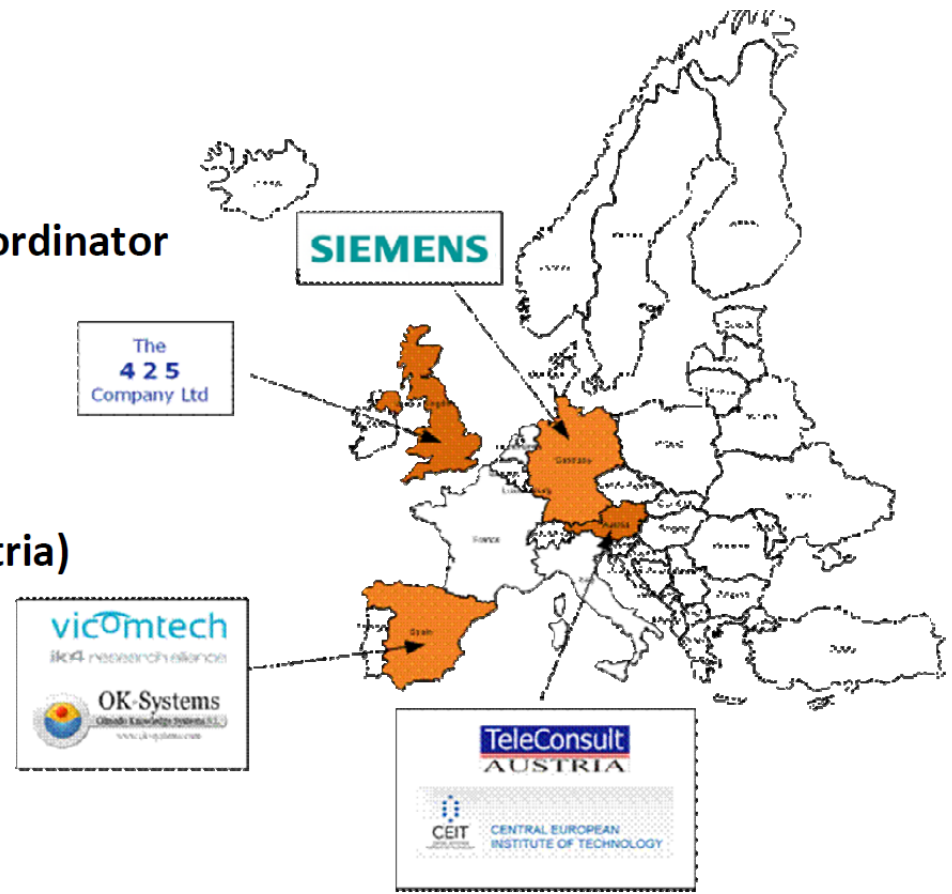
**Funding:** FP7 ICT

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- VICOMTECH-IK4 (Spain) - Coordinator
- CEIT ALANOVA (Austria)
- OK SYSTEMS (Spain)
- SIEMENS AG (Germany)
- TELECONSULT AUSTRIA (Austria)
- THE 425 COMPANY (UK)





# THE MOTIVATION



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# THE TECHNOLOGY



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## THE GOAL

To develop a GNSS-based mobility service for people with impaired visually capabilities, to guide them along a pre acoustic and audio-haptic signals, which meets the level of accuracy and reliability they need in urban environment for improving their day life autonomy

### Other outcomes:

- Develop innovative tools which could help blind and visually impaired people to move around autonomously
- Implementation of a user-friendly portable satellite with acoustic and haptic user interfaces enabling users to obtain a insight of their surrounding environment
- Retrieve benefits from navigation services to accuracy and reliability as well as the level of service availability.

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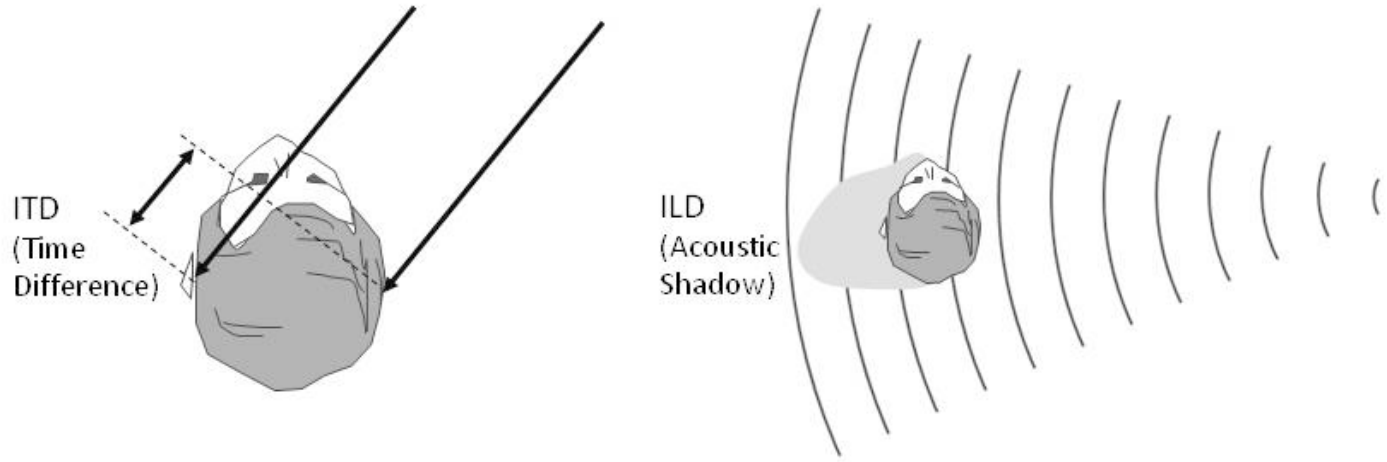
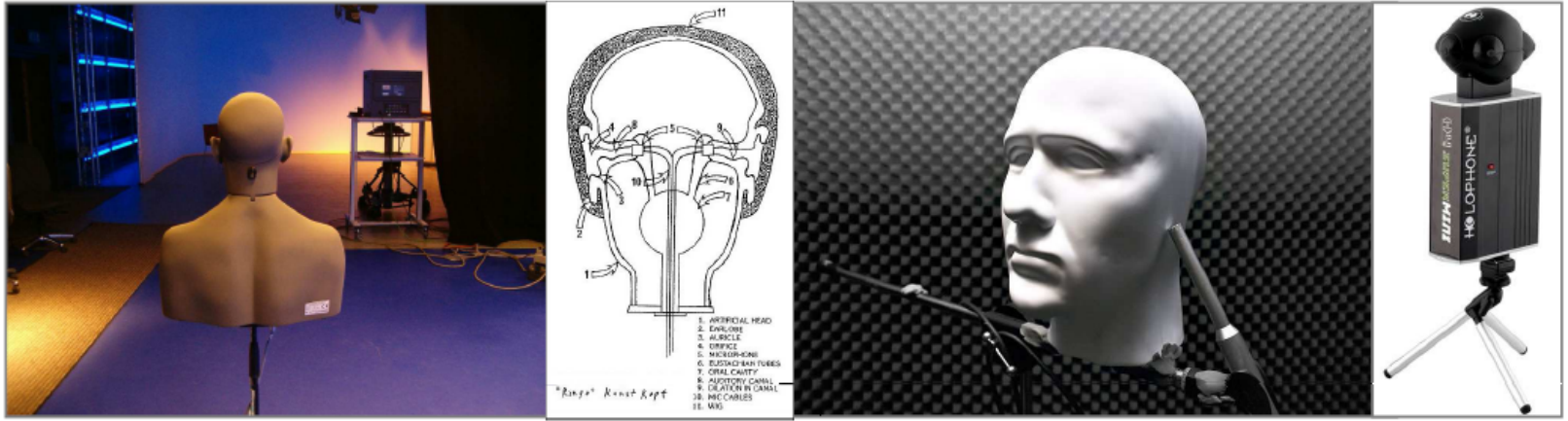
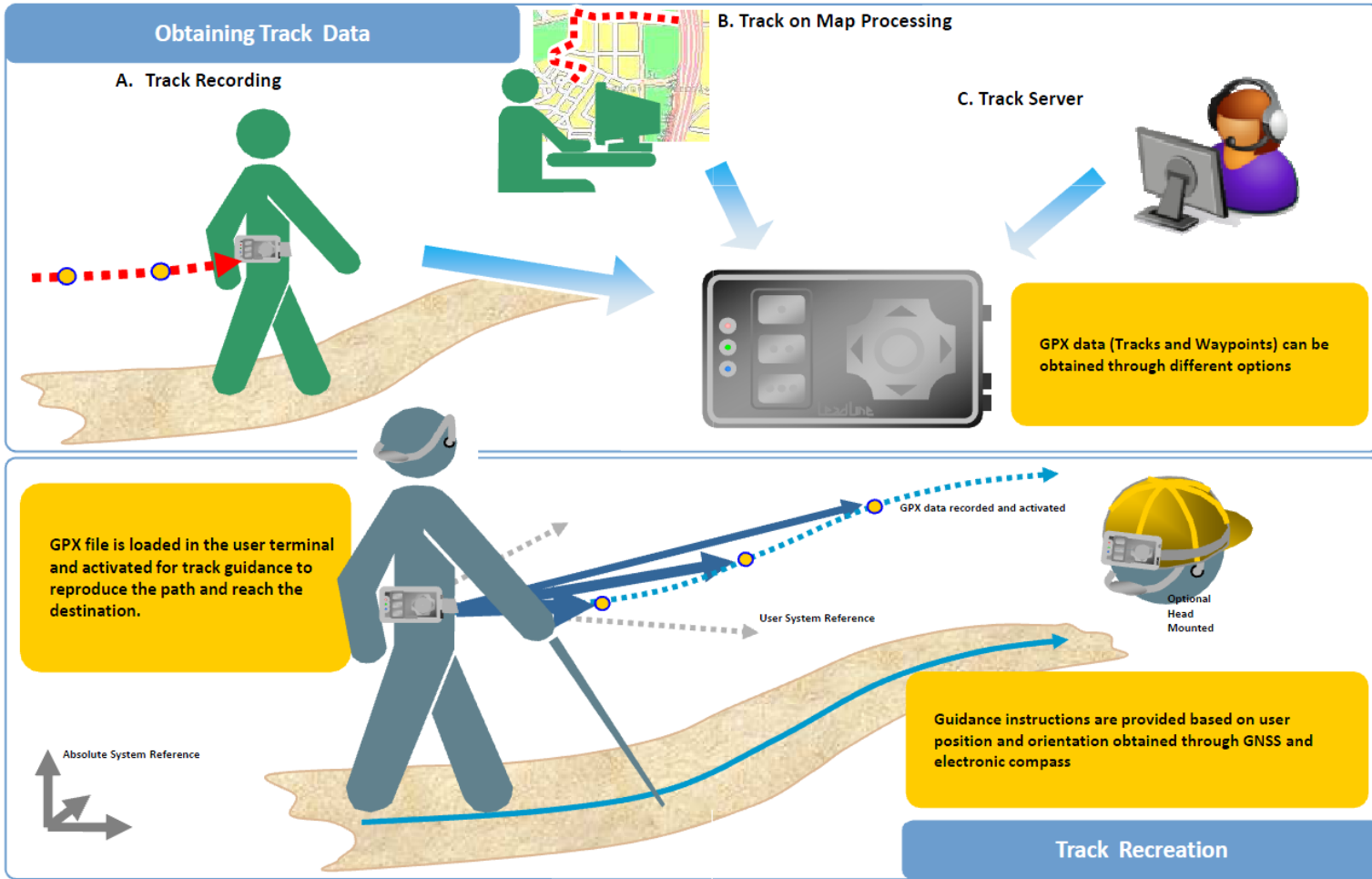


Diagram explaining how sounds reach both ears in Holographic system

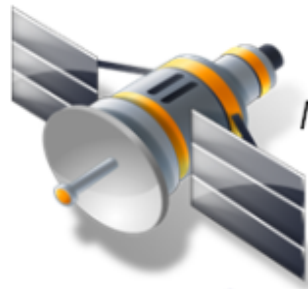


System operation





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Global Navigation Satellite System

Binaural guidance



Localization and navigation module



Smartphone (iOS, Android & others)



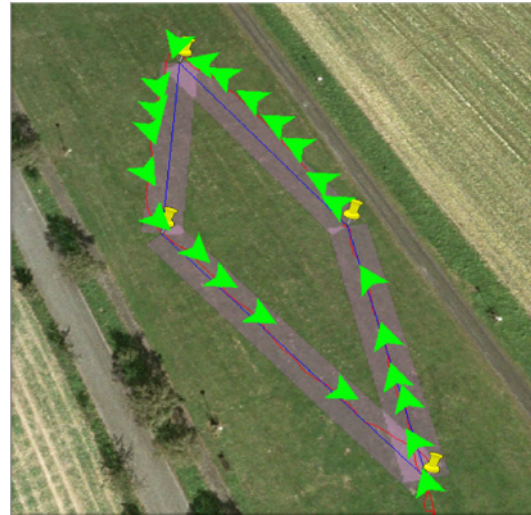
User Terminal diagram: GNSS + Localization and navigation module + Binaural Guidance + Smartphone

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User and route of proof of concept test in Padeborn, Germany in 2012

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ik4 research alliance

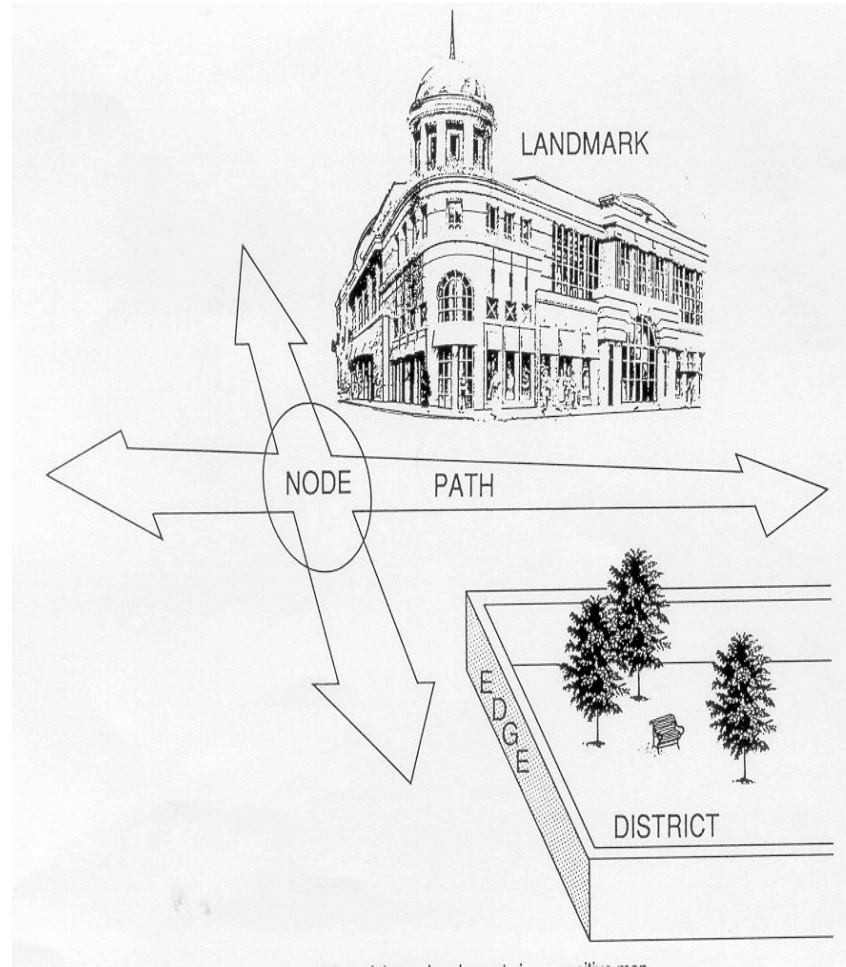


ALANOVA  
Department for Urbanism,  
Transport, Environment  
and Information Society



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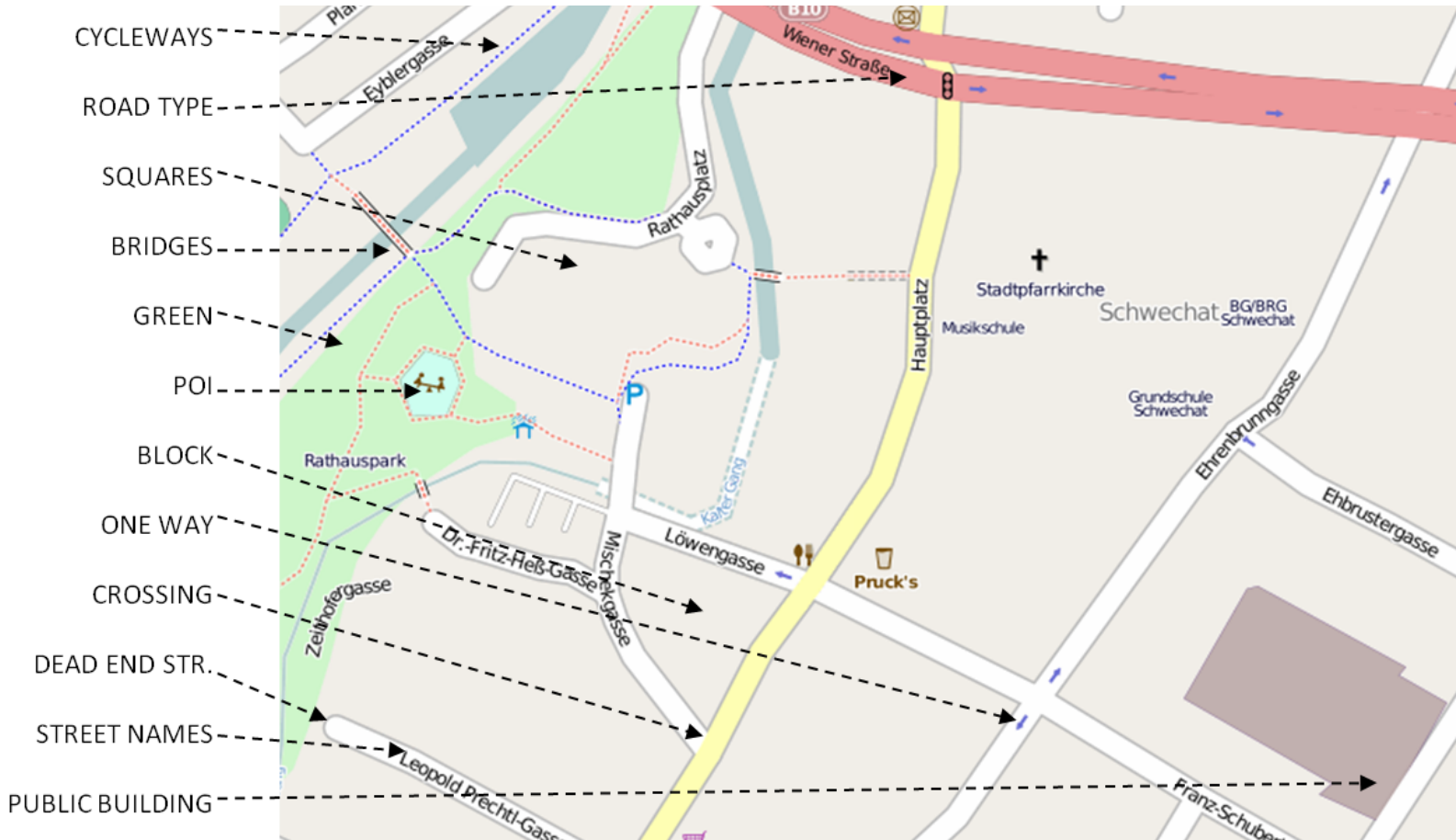


• Link elements of urban space: path, edge, district, node, landmark (Lynch 1960)

- Orientation points



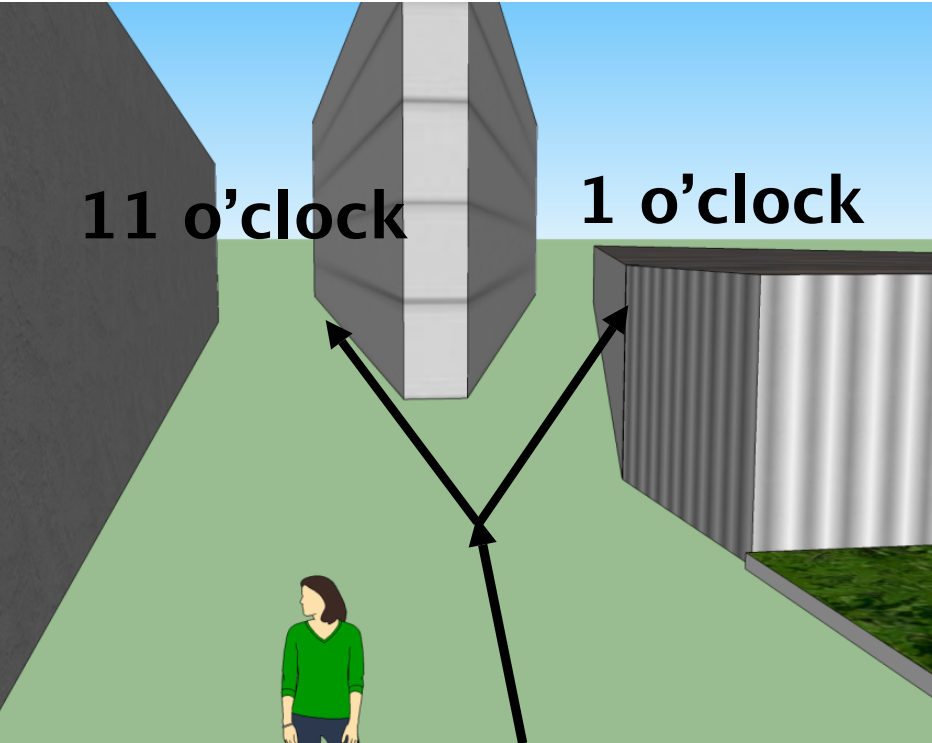
- Semantic description



- Example: A crossing



- Example: A crossing

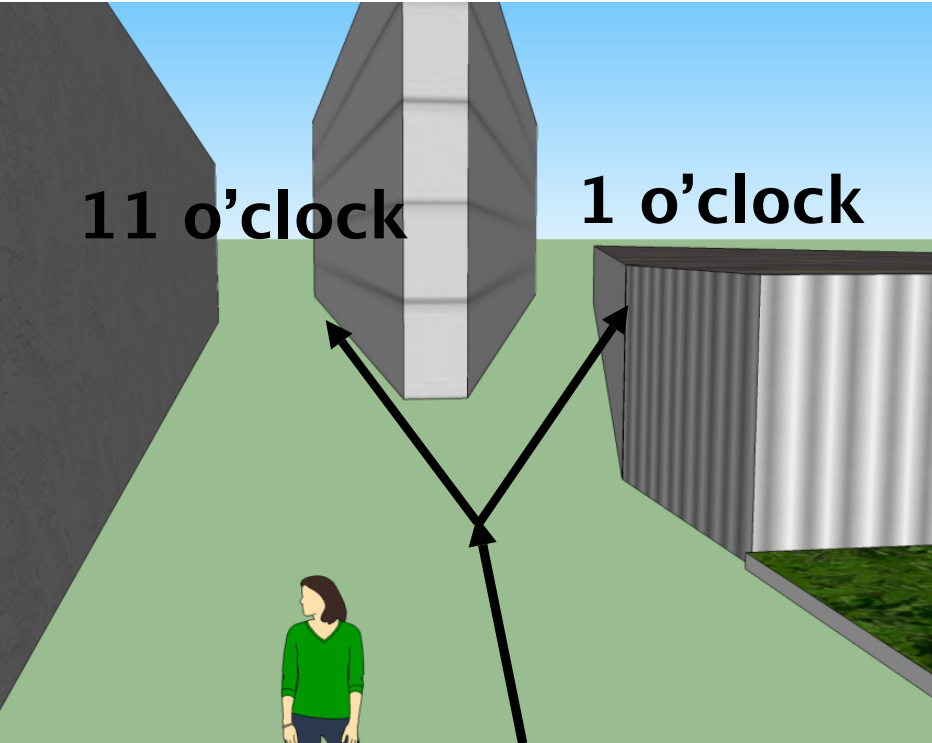


“Street A intersects at 1 o'clock, street B at 11 o'clock,”

> Y-crossing



- Example: A crossing



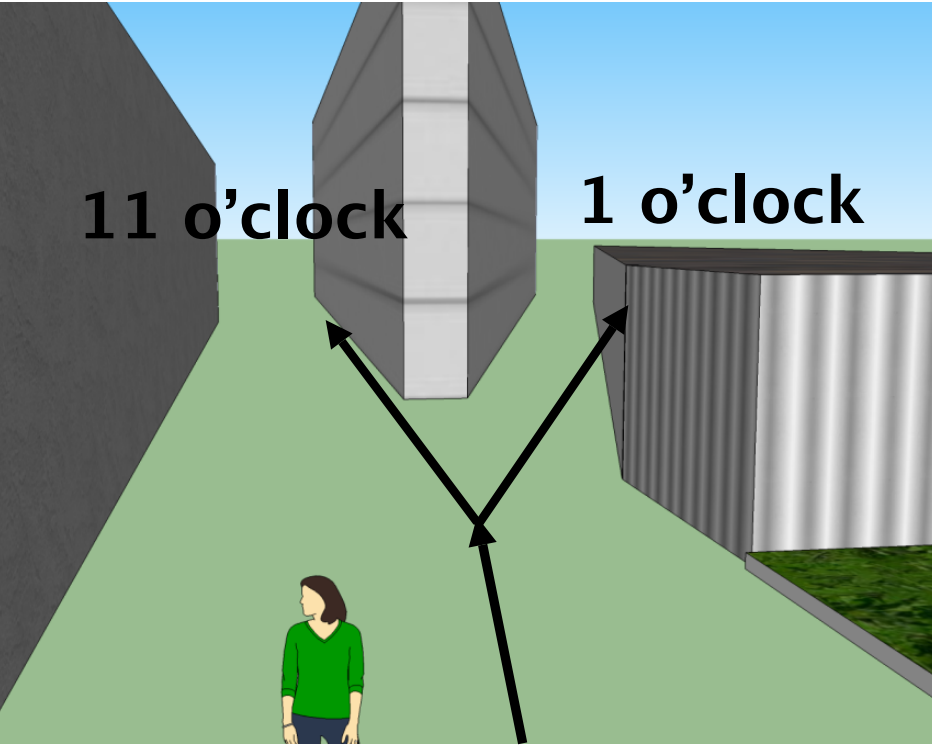
“Street A intersects at 1 o'clock, street B at 11 o'clock,”

> Y-crossing





- Example: A crossing

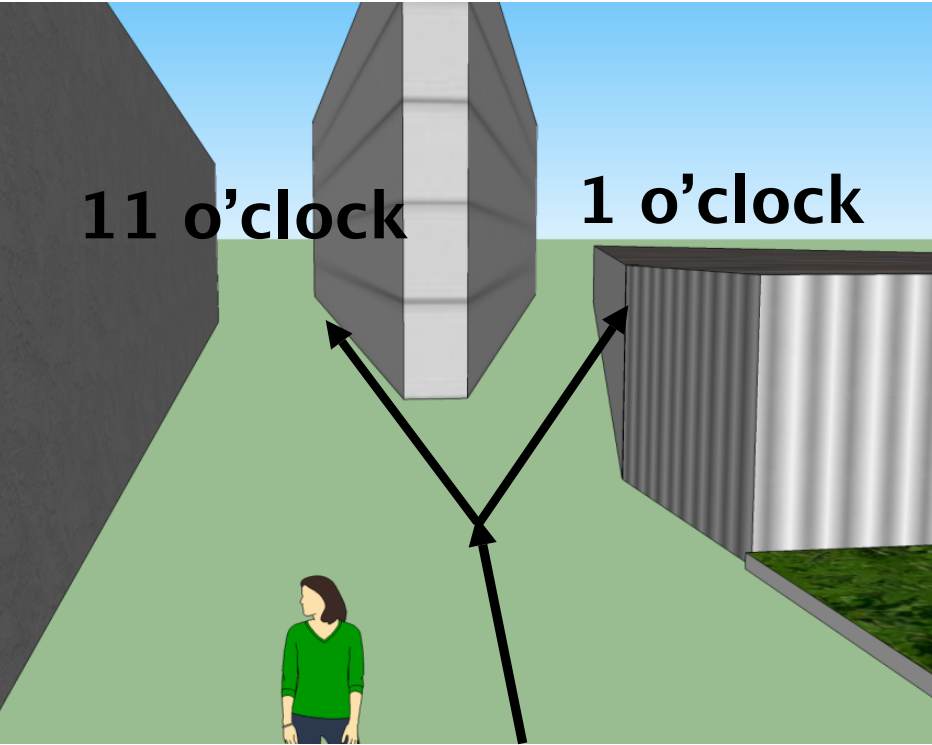


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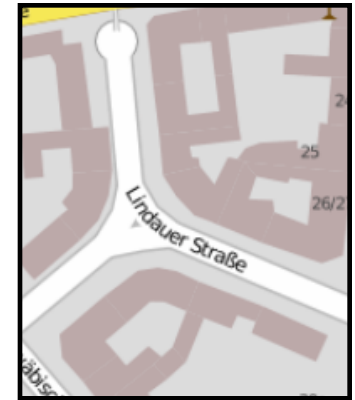
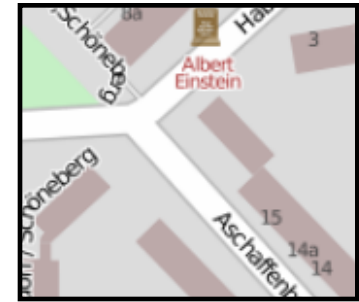


- Example: A crossing



“Street A intersects at 1 o'clock, street B at 11 o'clock,”

> Y-crossing



## Beschreibung des Straßenabschnitts

- **Rotenkreuzgasse**
- Länge: 71 Meter
- Winkel vorne: 2 Grad (nördlich)
- Winkel hinten: 182 Grad (südlich)
- Straßenart: Anrainerstraße
- Höchstgeschwindigkeit: 50

## Raw Properties

- highway: residential
- maxspeed: 50
- name: Rotenkreuzgasse
- source:maxspeed: AT:urban

## Beschreibung vordere Kreuzung

### T-Kreuzung

- **Süd (6 Uhr/hinten):** dieser Straßenabschnitt
- **Ost (3 Uhr/rechts):** Große Pfarrgasse
- **West (9 Uhr/links):** Große Pfarrgasse

## Beschreibung hintere Kreuzung

### X-Kreuzung

- **Süd (12 Uhr/vorne):** Rotenkreuzgasse
- **Nord (6 Uhr/hinten):** dieser Straßenabschnitt
- **West (3 Uhr/rechts):** Haidgasse
- **Ost (9 Uhr/links):** Haidgasse

## POIs

### Points of Interest

#### Altglas

- nach 18 Meter
- Wichtige Einrichtung: Altstoffsammlung
- Hausnummer: Rotenkreuzgasse 8

## Raw Properties

2204



Haidgasse (30 Meter) / Große Sperlasse (39 Meter)



next steps...



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AUSTRIA



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# THANK YOU!



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