

## Consortium



AIT Austrian Institute of Technology GmbH  
Austria



Institut für Automation und  
Kommunikation e.V. Magdeburg  
Germany

Enabling Smart Mobility.

Fluidtime



Fluidtime Data Services GmbH  
Austria



United Institute of Informatics Problems,  
National Academy of Sciences of Belarus,  
Belarus

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[perron-project.eu](http://perron-project.eu)

**perron**  
pedestrian navigation



Enhanced Pedestrian Routing and  
Navigation as well as Walkability  
Assessment of Pedestrian Ways

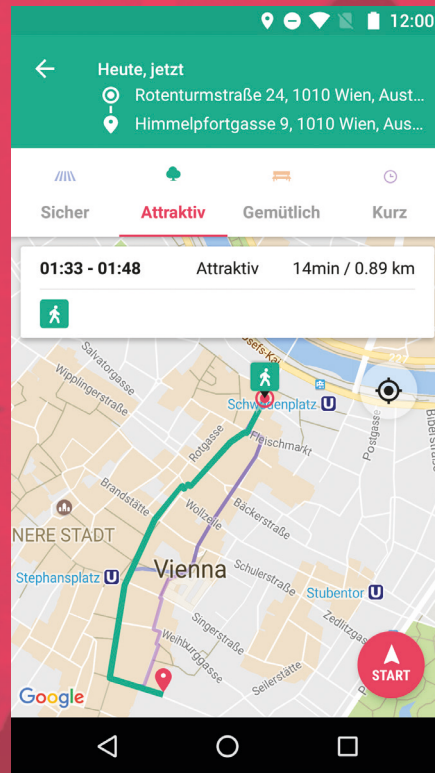


## Objectives

Perron aims to improve pedestrian navigation and routing by bringing it to a more detailed and realistic level. The topics **Quality of Pedestrian Ways, Road Crossing and Pedestrian Navigation** are investigated.

Within a user-centered design process the developed methods and algorithms are brought together in a mobile application and are evaluated in the field at the two test sites in Vienna (Austria) and Magdeburg (Germany).

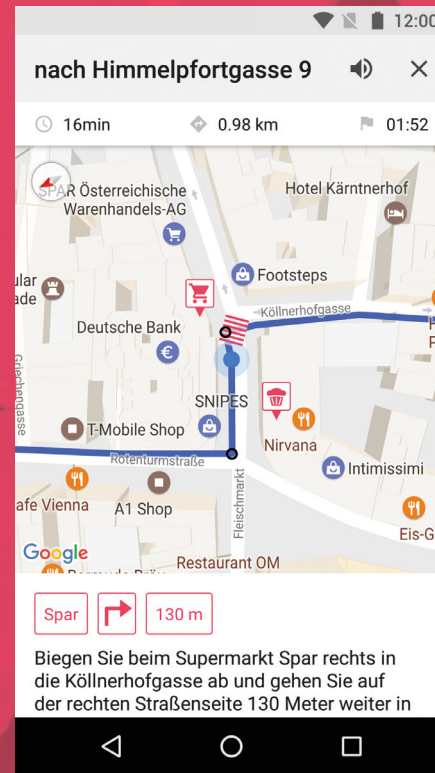
## Quality of Pedestrian Ways



Pedestrian route choice is affected by a number of parameters. Although distance is the most important determinant, other quality categories, such as quality of pedestrian facilities (e.g. pavements and crosswalks), safety (such as safe crossing facilities in reasonable distances), physical accessibility, attractiveness and comfort need to be considered.

Within the project a model of pedestrian quality needs is applied and validated in selected areas in Magdeburg (Germany) and Vienna (Austria). For the purpose of gaining quality related data, data collection methods were developed and existing concepts further refined. Based on existing methods, a routing algorithm was developed which takes into account the quality of pedestrian ways.

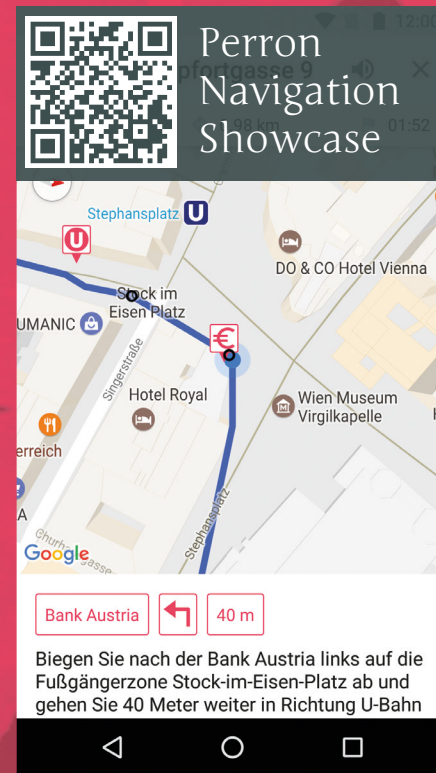
## Road Crossing



Crossing the road on a route is in most cases not avoidable. In the inner city, pedestrians usually find dedicated crosswalks (zebra crossings and signal controlled crossings). However, in peripheral areas, dedicated crosswalks are rare and pedestrians are forced to cross streets under less optimal conditions.

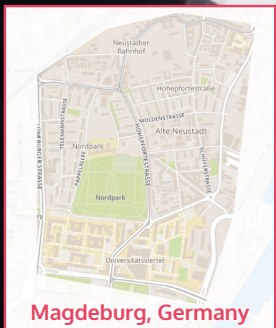
Existing routing approaches were applied and evaluated. Additionally, new ones were developed, in order to dynamically calculate pedestrian routes, taking into account crossing on non-dedicated locations. To this end, street network topology was investigated and patterns for road crossing at non-dedicated crosswalks were identified to develop algorithms for an intermodal context.

## Pedestrian Navigation

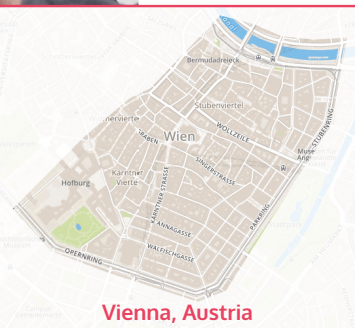


To provide pedestrians with suitable navigation instructions, it is necessary to extend and adapt existing navigation technologies. Since pedestrians use navigation services in a ubiquitous context it is important to make use of innovative navigation instructions that include relevant points of interest.

New instructions are developed to communicate information about these points of interest, as well as for crossing the road away from dedicated crosswalks. To this end, OpenStreetMap data, is combined with map views and intermodal feedback is provided to the user to generate and present pedestrian navigation instructions that meet the needs of pedestrians and ensure an optimal user experience.



Magdeburg, Germany



Vienna, Austria