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interoperable Smart City services through an Open Platform for urban Ecosystems

# Collaboratively collected geodata to support routing service for disabled people

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## **Disabled people Routing Services**



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- To provide a routing service for disabled people and specifically to people with mobility impairments.
- To provide semantic routing instructions to disabled people.
- Customization of the existing OpenLS-compliant routing developed in the and it is adapted to cater for specific requirements of disabled people (account for barriers, slopes, tactile paved sidewalks, etc.)

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Path result calculed based on specific weights.

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Main issue



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There is a general lack into information needed for set up an efficient algorithm:

- Sidewalks;
- Barriers;
- Ramps;
- Steps;
- Tactile paving
- Crossing and traffic lights.
- etc..

There is not or very few datasets available on municipalities. Data collection is a time consuming and expensive process.

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# Use of VGI to collect information



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Data collection task is very challenge and key factors are:

- Awareness and motivation of volunteers;
- Provide tools for data collection;
- Organizing the On-field survey;
- Post processing Data elaboration;

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#### **Open Street Map as starting point**



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The OSM model is open and extensible with new tag, furthermore many features as stairs, sidewalks and crossing are contained into the database.



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Architectural barriers survey mobile application



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- Data model based on OSM and related initiatives (OSM Wheelchair\_routing)
- Not limited to Pol, possibility to collect segment;
- Collect photos;
- Possibility to export data as .osm or .csv for use in other applications;

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Available for iOS and android (search for i-scope barrier survey)

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#### Architectural barriers survey mobile application

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### Workflow



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- 1 Survey campaign;
- 2 Downloading data and editing graph;
- 3 a) Uploading on spatial database for routing services and b) enrich OSM database ;

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4 a) Access to routing service and b) Receive feedback from OSM community;

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#### **Routing Service Architecture**



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The major tiers are: Tier A: Data collection and preparation Tier B: Spatial/Routing database setup Tier C: OpenLS compliant Routing service

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Tier D: Semantic Instructions service

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#### **Routing Service**



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# Conclusions and future work



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- VGI is probably the most promising way to collect detailed and domain related geographic information.
- The main issue is not technological, but the awareness and motivation of participants in order to obtain large scale results.
- In case of collection to support routing service a bottleneck is given by the post processing editing to create a connected graph.
- Intensive testing of the application to verify the weights has to be performed. .

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# Thank you for your attention Test it! Wien is a pilot

http://iscope.graphitech-projects.com/

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