TECHNISCHE UNIVERSITÄT CHEMNITZ

Faculty of Electrical Engineering and Information Technologies Institute of Information Technology Chair for Circuit and System Design

New indoor data scheme for OSM

Presenting and discussing a new idea for mapping of indoor data

Indoor data for OSM – What's the current state?

- IndoorOsm: http://wiki.openstreetmap.org/wiki/IndoorOSM

  – http://osmtools.org/indoor/

  – http://indoorosm.uni-hd.de/

- Ideas: http://wiki.openstreetmap.org/wiki/Indoor_Mapping
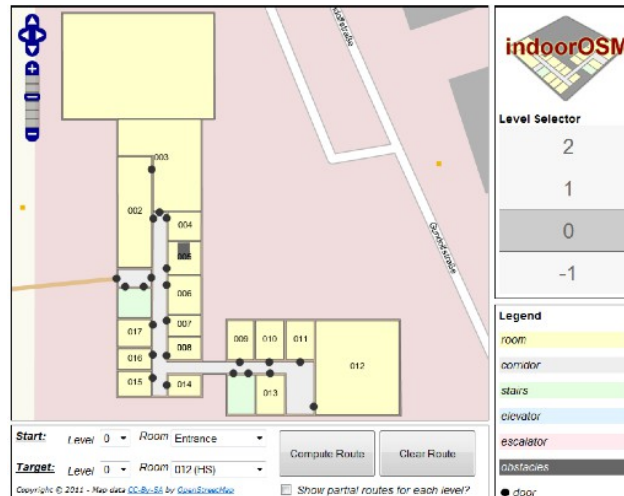
Data scheme - IndoorOsm by Marcus Götz et al
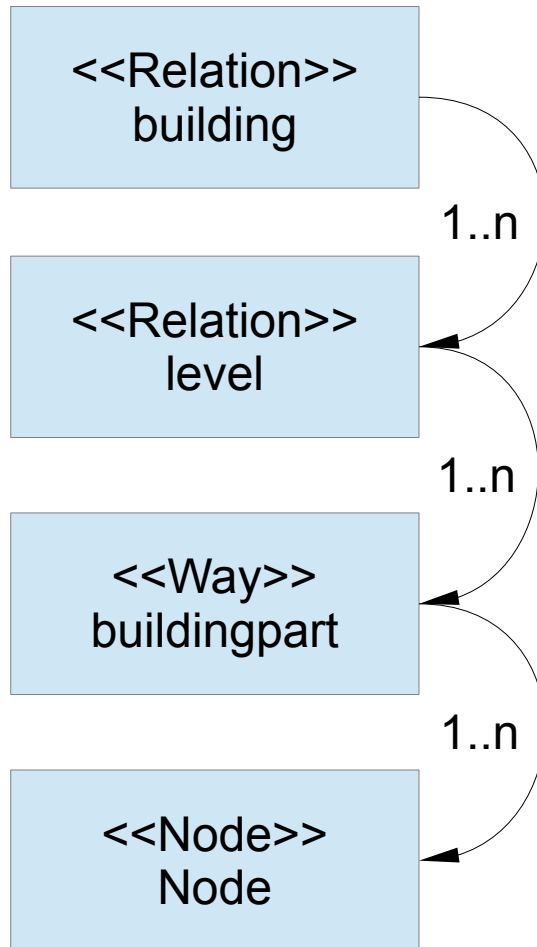
- Hierarchical data structure

- Rooms, walls, floors are mapped as buildingparts

- Further information of the building is added as key-value pairs

New idea: Flat data structure

Areas, rooms, … :

Example:


```
<way id='-28911' action='modify' visible='true'>
    <nd ref='-27619' />
    <nd ref='-28145' />
    <nd ref='-27274' />
    <nd ref='-27559' />
    <nd ref='-28493' />
    <nd ref='-27619' />
    <tag k='indoor:area' v='yes' />
    <tag k='indoor:level' v='1' />
    <tag k='name' v='A116' />
</way>
```
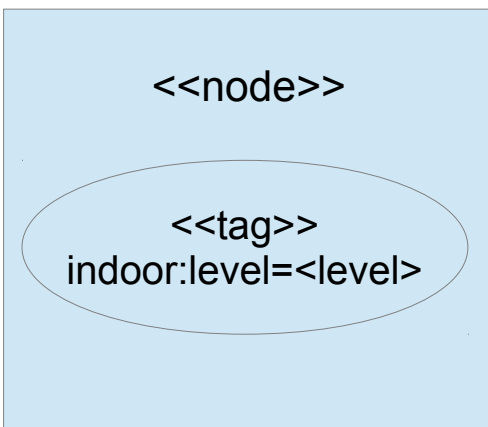
<<way>>

<<tag>>
indoor:level=<level>

Entrances, doors, … :

<<node>>

<<tag>>
indoor:level=<level>

```
<node id='-29257' action='modify' visible='true' lat='50.81334489446' lon='12.92895423007'>
    <tag k='indoor:door' v='yes' />
    <tag k='indoor:level' v='-1' />
</node>
```

Relational versus flat data structure

Relational	Flat
• Structured search is easy, e.g.: Find toilet for man in building X at level Y	• Every level related data needs level tag • JOSM: simple filter for editing
• Heavy usage of relations to structure data → general acceptance of Mappers? • JOSM: Complex filters for editing necessary	• Structured search is more difficult

Current State – Indoor Shell / Wall

```
<way id='-28595' action='modify' visible='true'>
  <nd ref='-27328' />
  <nd ref='-26648' />
  <nd ref='-28310' />
  <nd ref='-27800' />
  <nd ref='-26739' />
  <nd ref='-27626' />
  <nd ref='-26978' />
  <nd ref='-28500' />
  <nd ref='-27849' />
  <nd ref='-27817' />
  <nd ref='-28200' />
  <nd ref='-26756' />
  <nd ref='-28007' />
  <nd ref='-26947' />
  <nd ref='-28391' />
  <nd ref='-27499' />
  <nd ref='-27137' />
  <nd ref='-28374' />
  <nd ref='-26819' />
  <nd ref='-27689' />
  <nd ref='-27706' />
  <nd ref='-27436' />
  <nd ref='-27328' />
  <tag k='indoor:area' v='yes' />
  <tag k='indoor:level' v='4' />
  <tag k='indoor:shell' v='yes' />
  <tag k='name' v='Rühlmann-Bau, B-Bau' />
</way>
```
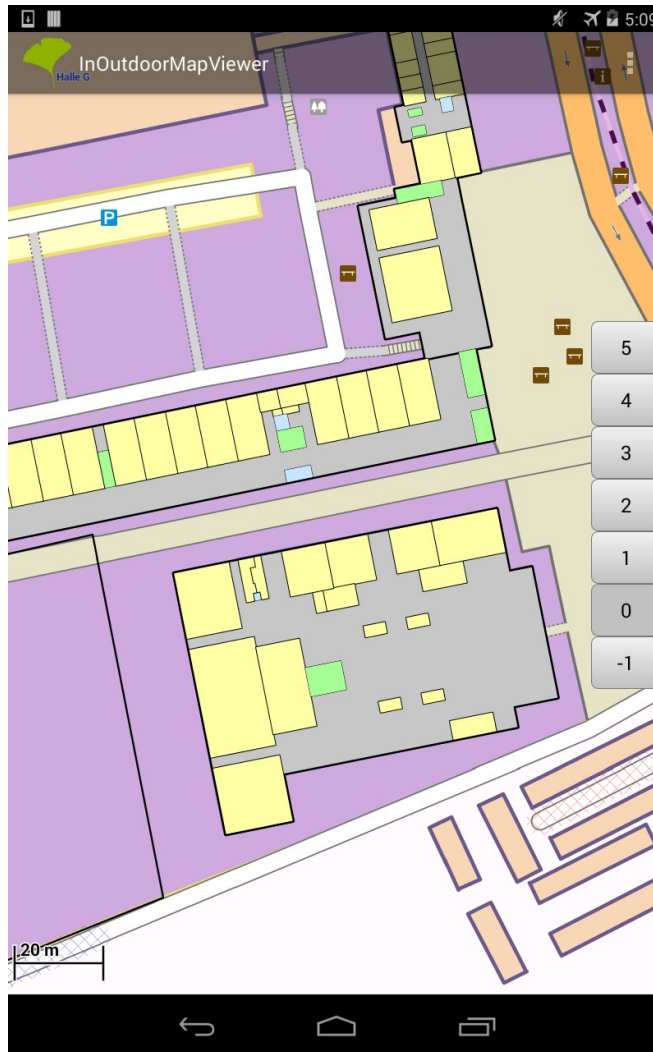
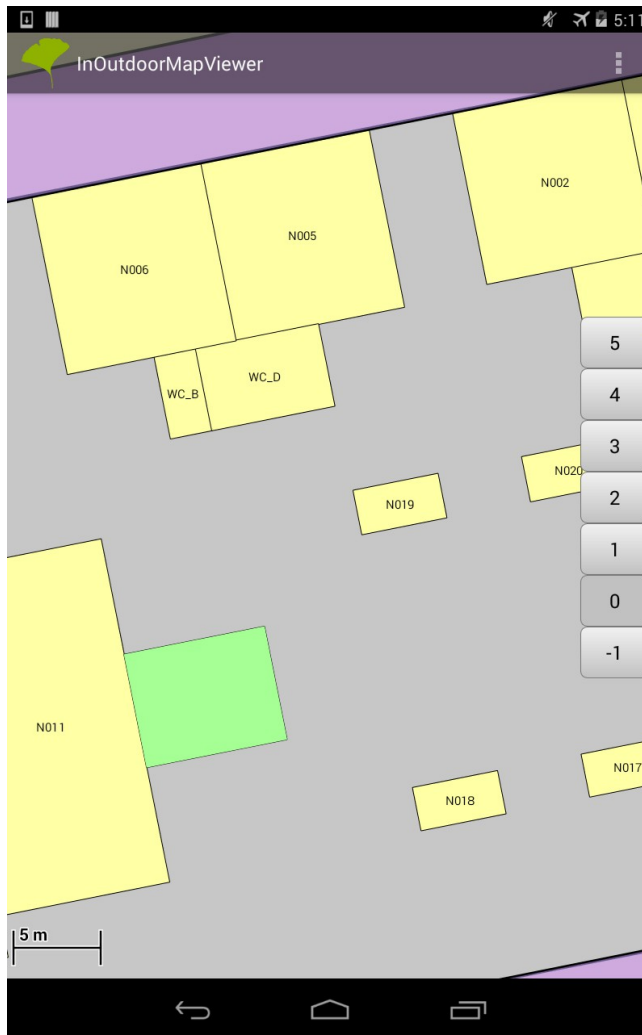# Current State – Indoor Areas

```
<way id='-28594' action='modify' visible='true'>
  <nd ref='-28147' />
  <nd ref='-27566' />
  <nd ref='-27464' />
  <nd ref='-26874' />
  <nd ref='-28338' />
  <nd ref='-28147' />
  <tag k='indoor:area' v='yes' />
  <tag k='indoor:level' v='3' />
  <tag k='name' v='Technik' />
</way>
```
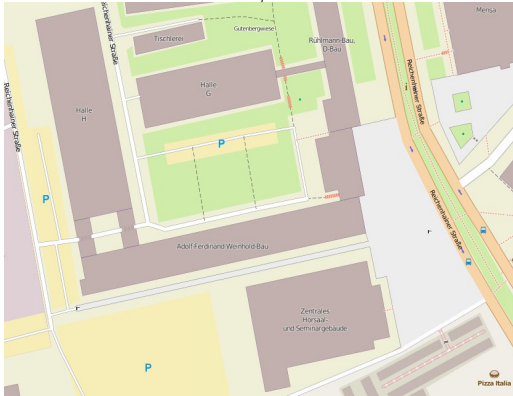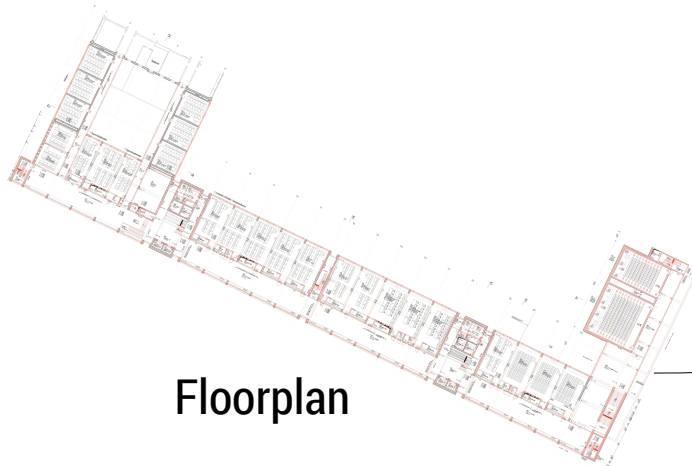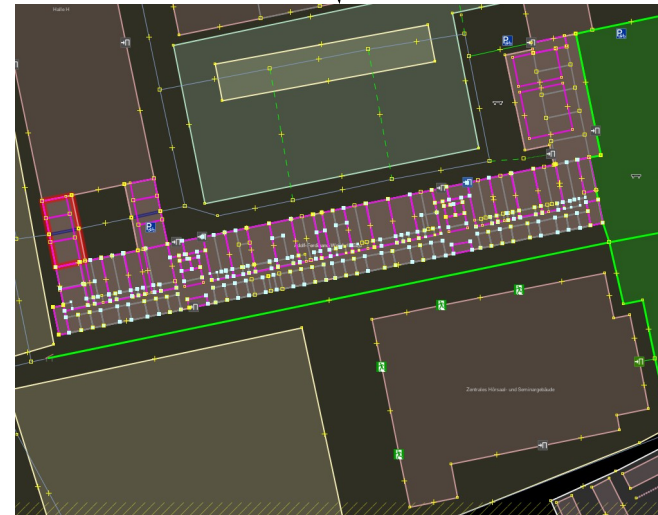
Current State – Indoor Areas

Editor Support – Current Workflow

JOSM

Outdoor maps

Floorplan

Fit floorplans into existing outdoor maps

Editor Support – Current Workflow

Editor Support - Ideas

- Introduce an indoor mode:

  – Tree view with selection of the level, e.g. „-1"

  – Other levels are hidden

  – Every drawn component is tagged with the selected level, e.g. <tag k='indoor:level' v='-1'

Editor Support – Ideas for better indoor support

Outlook

ToDos:

- Discuss about the data model

- Tool-Support (editors and renderer)

- 3D Indoor Description

- Update: http://wiki.openstreetmap.org/wiki/F3DB