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OSM: Markus59

contribute **house** **numbers** to OpenStreetMap

by ENAiKOON

Themes

- **Why should I map house numbers and addresses?**

- **Which data models are used for house numbers and addresses in OSM?**

- **History of the Keypad-Mapper**

- **Software features**

- **Backend support for the house number mapper through ENAiKOON OSM services**

- **Byproduct:
  contributions to the open source project opencellid.org**
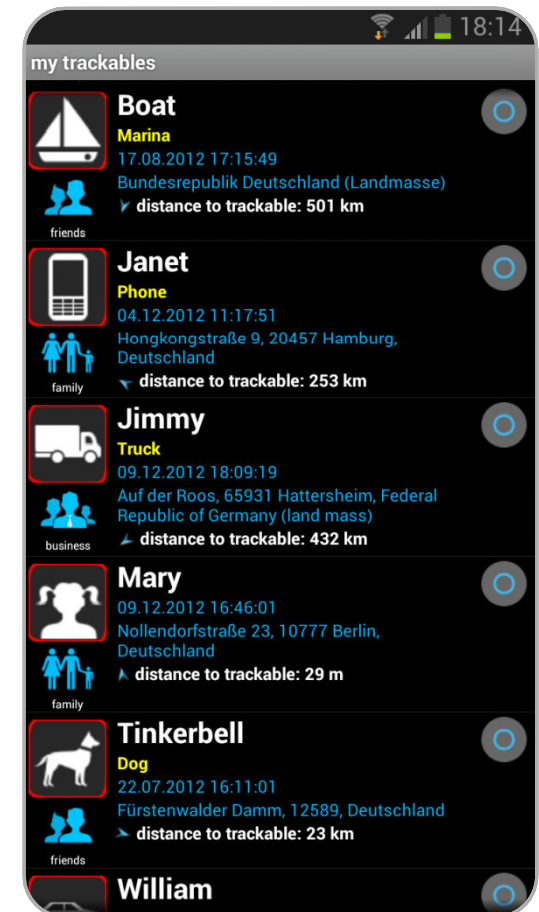
- **Future developments**

Why map house numbers and addresses?

- **Many applications that use geospatial data require house numbers / addresses:**

  - navigation programs

  - telematics solutions

  - geo-coding applications

  - reverse geo-coding

Opinions

- **Steve Coast (OSM founder)**

  November 2012: once there are enough addresses in OSM there will be no reason to continue using proprietary maps

  http://stevecoast.com/2012/11/28/openstreetmap-addressable/

- **Frederik Ramm (OSMF Board Member)**

  December 2012: "I still don't think that addresses are of paramount importance. But I think I'll carry on recording them on the side, and occasionally involving friends and family as I did, and I hope that a few others will join me in that endeavour – if only to prove wrong the sentiment that "we can never get enough addresses through crowdsourcing".

  http://osm.gryph.de/2012/12/1000-addresses/#more-172

- **Taiwanese OSM community**

  October 2012: after the SOTM in Japan, a competition was held with the goal to map more addresses

  http://wiki.openstreetmap.org/wiki/WikiProject_Taiwan/2012_Competition

"Today OSM is a great display map.
It's routable too if you squint.
But it's essentially not geocodable, you can't turn an address into a location.
If we fix that then there's really not a whole lot of point to ever using a proprietary map ever again."

Data models

- **Relations**

  In a relation, individual elements are brought together by describing relationships between these objects.

  - ✓ smaller database
  - ✓ no redundant data

  – the mapper needs experience with relations
  – not recommended for novice mappers
  – high risk for accidentally corrupting relations

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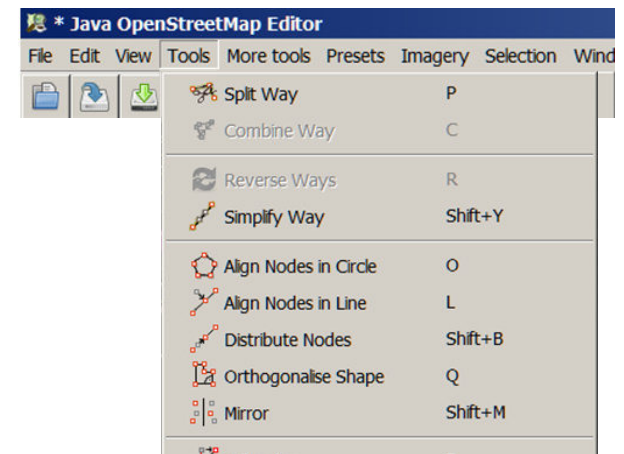
Data models

- **Karlsruher Model**

  - ✓ easy to understand, even for novices
  - ✓ easy to process for the evaluation software
  - ✓ not susceptible to inadvertent destruction of data

  - – redundant data in the database -->
    - o risk of discrepancies
    - o bigger database
  - – requires greater effort to change information on street names and postal codes

  ⇒ **Keypad-Mapper 3 uses the Karlsruher Modell**
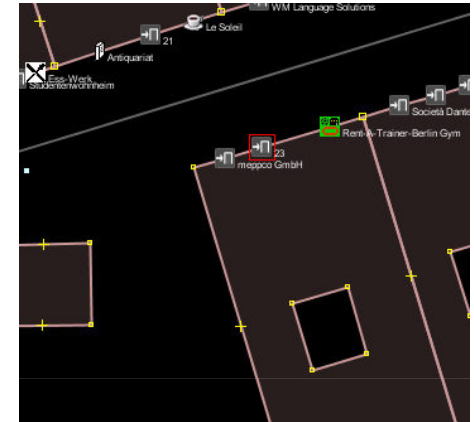
Annotation/Addresses ...	
Key	Value
addr:city	Berlin
addr:country	DE
addr:housenumber	23
addr:postcode	10777
addr:state	Berlin
addr:street	Nollendorfstraße
addr:suburb	Schöneberg
entrance	yes
wheelchair	no
➕ Add	📝 Edit	🗑 Delete

History of the Keypad-Mapper

- **Version 1**
  published at the end of 2010 by Nic Roets (South Africa)
  nroets@gmail.com

- **Version 2**
  published in the middle of 2011 by Cobra (Germany)
  cobra_osm@yahoo.com

- **Version 3.0**
  published February 2013 by ENAiKOON
  msemm@enaikoon.de

- **Version 3.1**
  published June 2013 by ENAiKOON
  msemm@enaikoon.de
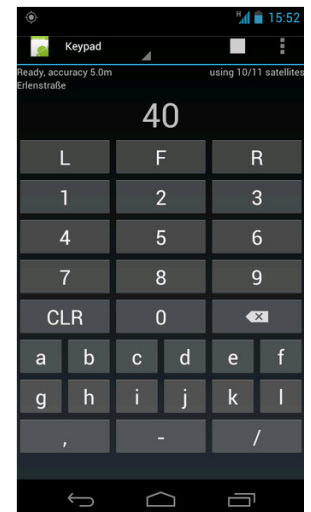
App details

- **Platform: Android**

- **Active users: > 2,600**

- **Download at:**
  Google Play, ENAiKOON Server

- **OSM wiki page:**
  German, English, Spanish, Italian, Latvian, Dutch, Russian, Ukrainian

- **Wish list for new enhancements: on the wiki page**

KEYPAD-MAPPER - OPENSTREETMAP - ✓ Published ▾
de.enaikoon.android.keypadmapper3

STATISTICS | Total installs by user | for 5 Aug 2013 - 5 Sep 2013 | Export as CSV
Show: last month 3m 6m 1y All
The total number of unique users who have ever installed this app on one or more of their devices. Learn more

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Features: house number recording

Actual street and postal code

Input box for house numbers

Menu bar

- undo

- GPS "freeze"

- display GPS / compass

- photo with GPS coord. in EXIF

- sound notification with GPS coord.

Help

History:
last 3 house numbers

Input field for additional notes

Keypad

(layout depends on your screen size)

Nollendorfstraße, 10777

note for this location

12
14
16

a b c d 1 2 3
e f g h 4 5 6
i j k l 7 8 9
, - / 0

8 m

36% 12:31

Features: address information and GPS accuracy
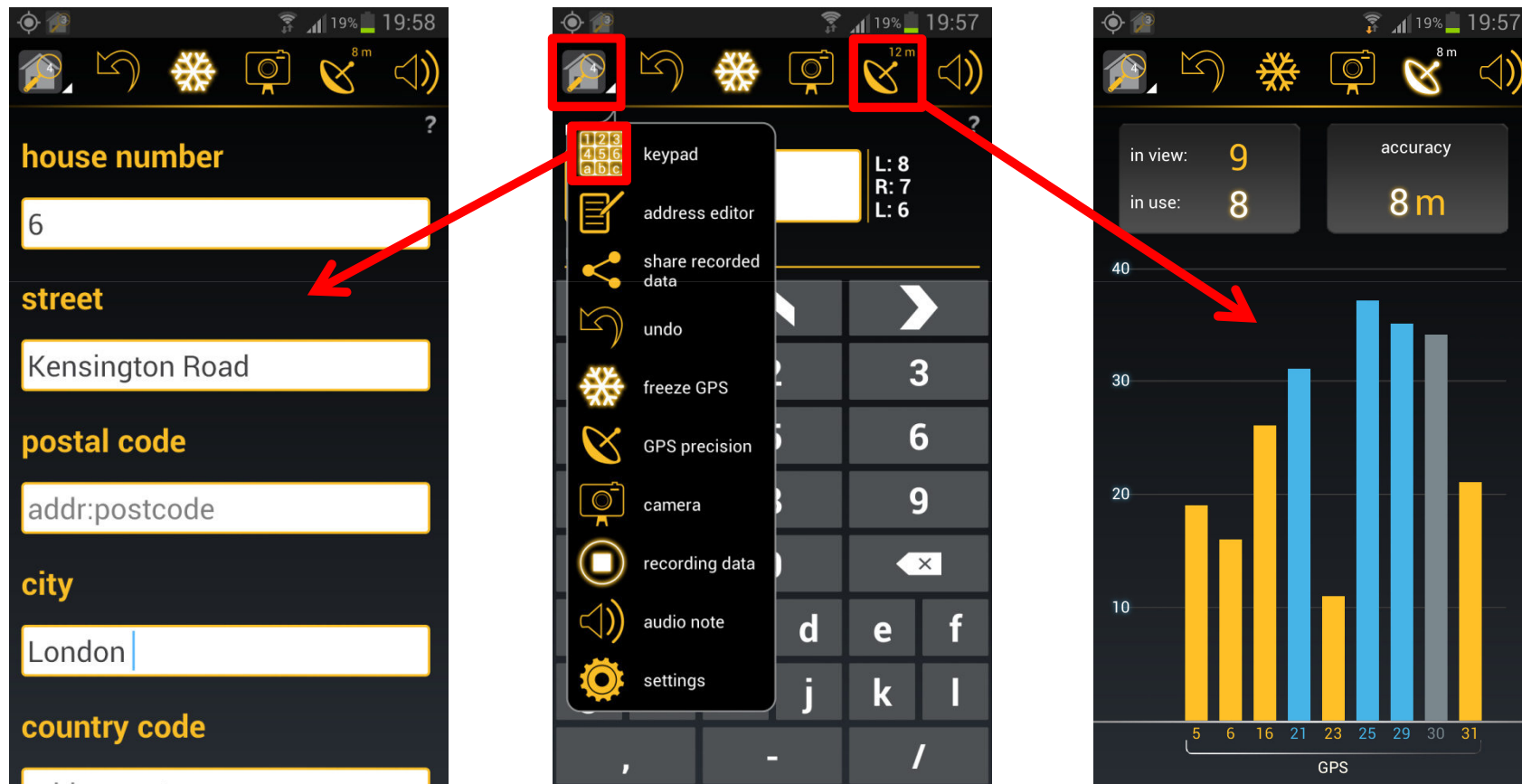
Configurable settings
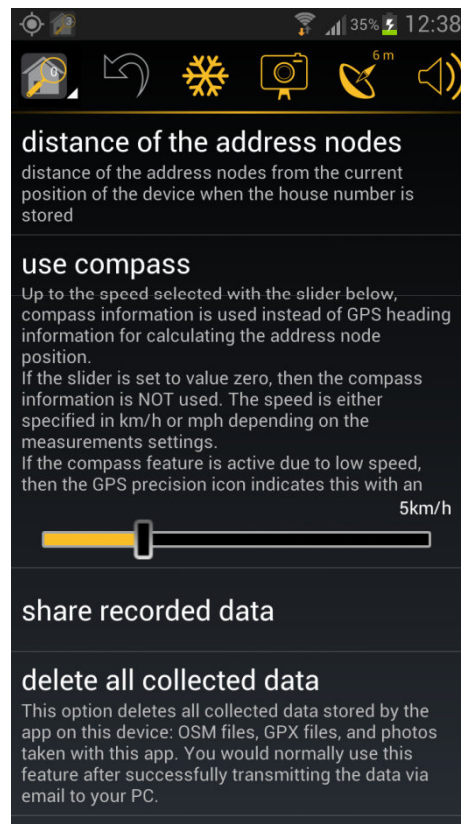
Supported languages:

- German
- English
- French
- Greek
- Dutch
- Italian
- Polish
- Russian
- Spanish

Measurement systems

- metric
- imperial

Data can be sent as an e-mail attachment

Reports bugs of the app to the developers

distance of the address nodes
distance of the address nodes from the current position of the device when the house number is stored

use compass
Up to the speed selected with the slider below, compass information is used instead of GPS heading information for calculating the address node position.
If the slider is set to value zero, then the compass information is NOT used. The speed is either specified in km/h or mph depending on the measurements settings.
If the compass feature is active due to low speed, then the GPS precision icon indicates this with an

5km/h

share recorded data

delete all collected data
This option deletes all collected data stored by the app on this device: OSM files, GPX files, and photos taken with this app. You would normally use this feature after successfully transmitting the data via email to your PC.

Usage of compass for heading calculation instead of GPS at low speed

Distance of the address nodes at right angle to the direction of movement

"Standby Mode" of the display can be averted

GPS power saving mode

JOSM .wav file folder adjust

Delete the collected data after the data has been processed
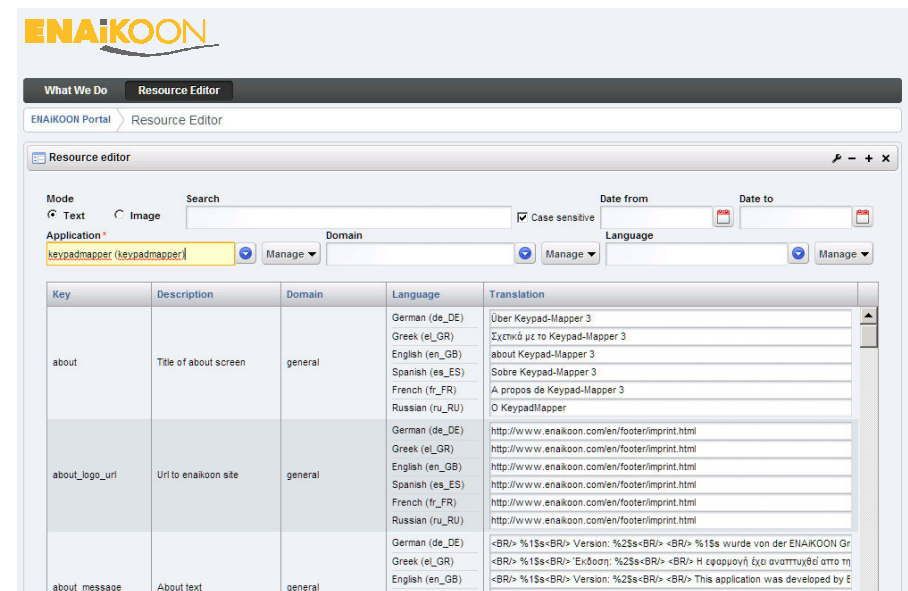
Backend

- **NOMINATIM**
  - **reverse geocoding for the calculation of street names / area codes**
  - **the app recalculates every 10 seconds**
  - **4 individual NOMINATIM servers**
 - **regular data updates via DIFF files**

- **ENAiKOON resource editor**
  - **more than 100,000 text resources (up to 18 languages)**
  - **more than 10,000 graphic resources that are language dependent**
 - → **server-based resource management**

Further ENAiKOON backend capabilities

- **TIREX tile server load balancer**
  3 individual tile servers with TIREX load balancers

- **OSRM Server**
  3 individual OSRM servers with load balancers

- **Offline vector map data for MapsForge library**
  3 individual servers for generating vector data

  OpenGL implementation of MapsForge is currently under development
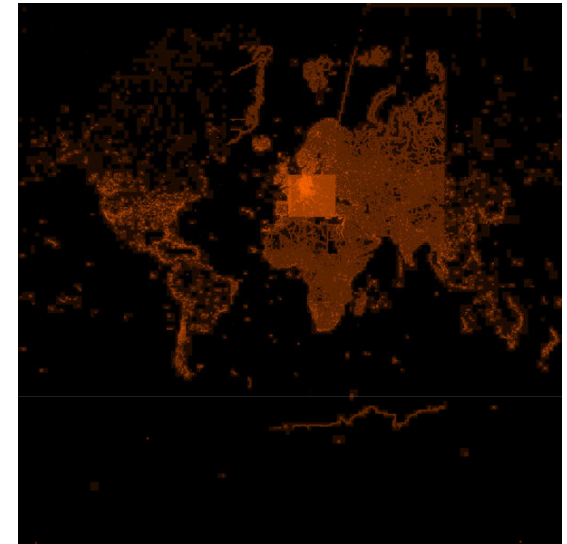
opencellid.org

- **GPS positions from cell phone towers**

- **Complementary to OpenStreetMap**

- **OpenSource**
  Download the database at: www.opencellids.org/en/download/

- **The largest OpenSource CellID database world wide**
  - 2,700,000 known CellIDs
  - 400,000,000 measurements
  - over 1 million new measurements and 1,500 new cells every day

- **Maintainer**
  Since March 2013, ENAiKOON is the maintainer of the project and
  owner of the domain
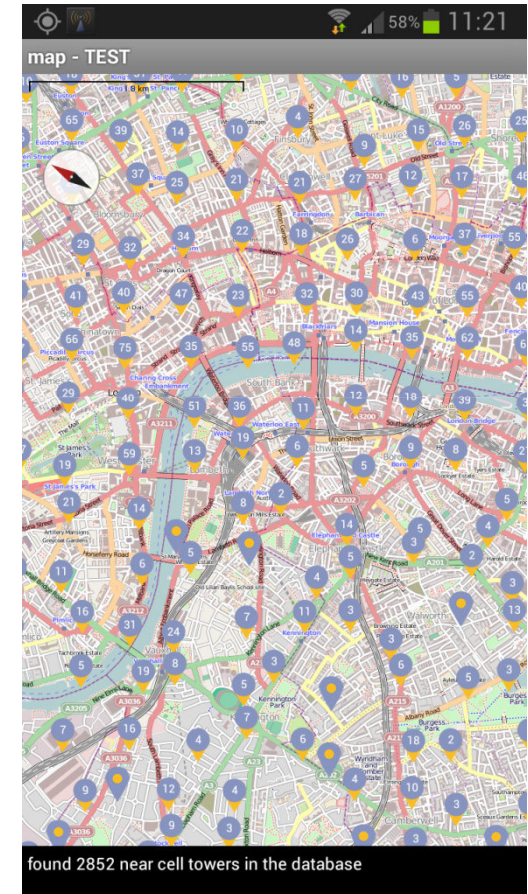
opencellid.org

**Why is OpenCellID integrated with Keypad-Mapper 3?**

- **valuable data source:**
  house numbers are often recorded in residential roads where opencellid data is urgently needed

- **GPS is already active**

- **mapper will not become confused from these extra features :**
  no interference with the app's operation

ENAiKOON

OpenCellID background download inViu contact

cell location | GPS location | Administration

CellID info

GPS positions of base stations

Base stations with newly added measures

Recently uploaded measurements

Measures of a selected base station

Date from   01/16/2013
Date to   01/21/2013
Limit   25000

SHOW

Heat maps

Statistics

Search location

## 3 main features in future version 3.2

Planned completion date: Christmas 2013

- **list of missing house numbers including false positive database**

- **configurable buttons on the keypad display**

- **POI editor**

- **configurable menu bar**

- **integration of geoChat**

- **UI improvements**
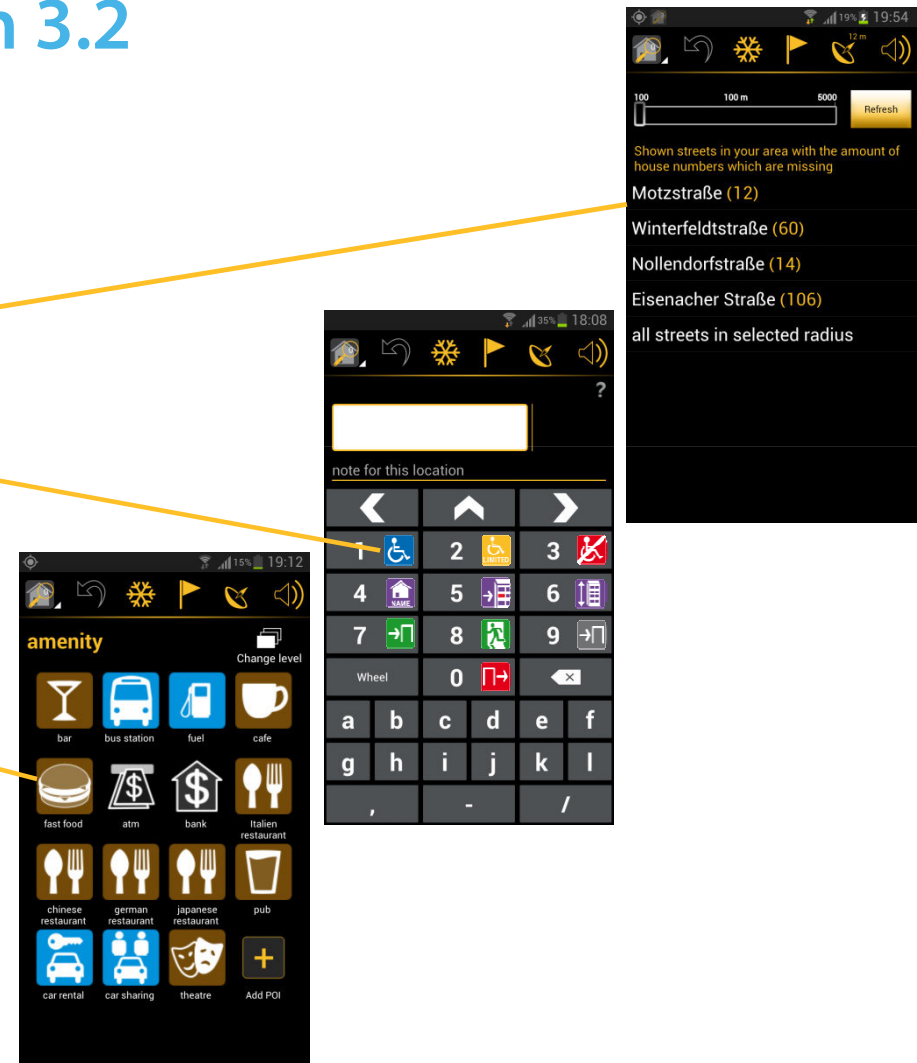
New feature 1: List of missing house numbers

- show streets around your position

- define the radius

- all streets with missing house numbers are shown in a list

- clicking on a street opens a list with the missing house numbers

- record a house number by clicking on the left or right arrow

- Hide a "missing house number" from the list if it does not exist and save it in a false positive database to avoid, that other mappers will search for it again
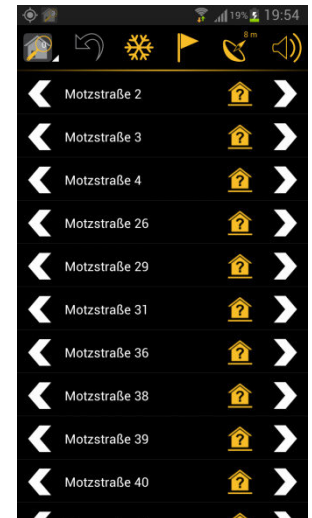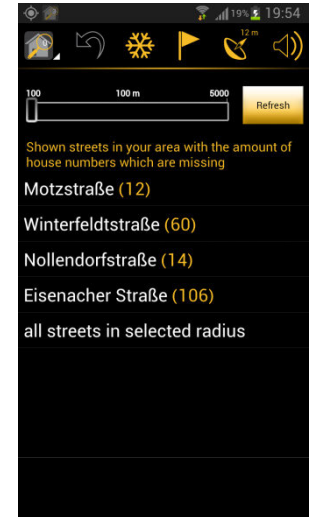
New feature 2: Configurable buttons on keypad

- **define your own icons including multiple tags per icon with constant or variable value**

- **key:value pairs will be saved with the house number**

- **switch between different icon levels by tapping on a customisable shortcut**

- **export and import icon levels → the community can share icon level**
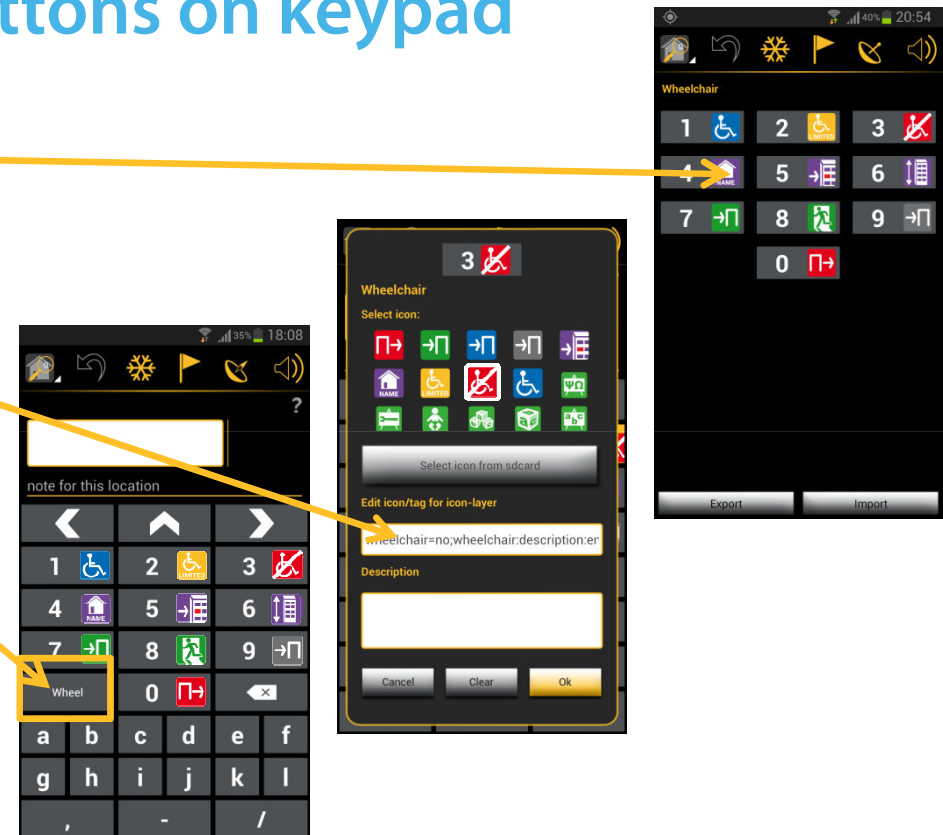
New feature 3: POI editor

- **create multiple levels – activate and change sequence of levels**

- **arrange POIs to your preference**

- **editable keys + values**

- **values can be entered while mapping the POI**

- **Use your own icons**

- **export and import POI levels**

- **use POI levels of other mappers**
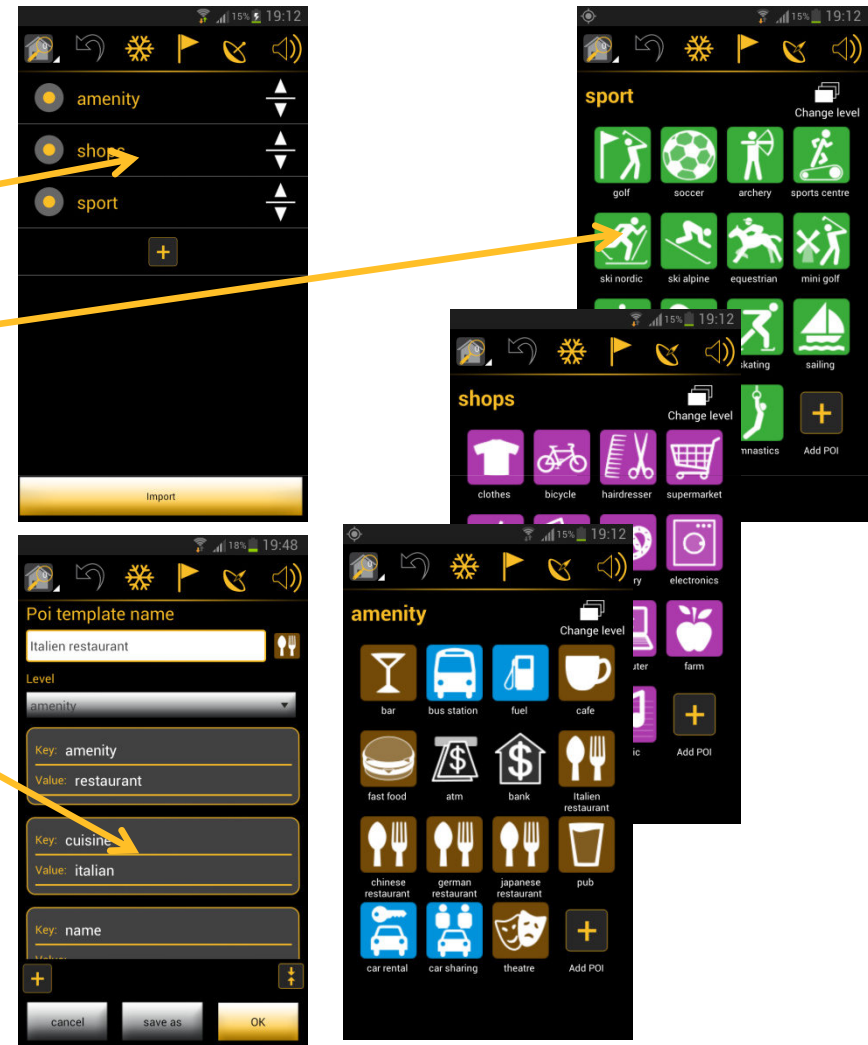
UI improvements

- **New menu options**

  – **missing house numbers**

  – **POI list**

  – **flash light on/off**

- **additional features**

  – **switch flash light on/off**

  – **configure screen rotation independent from phone settings**
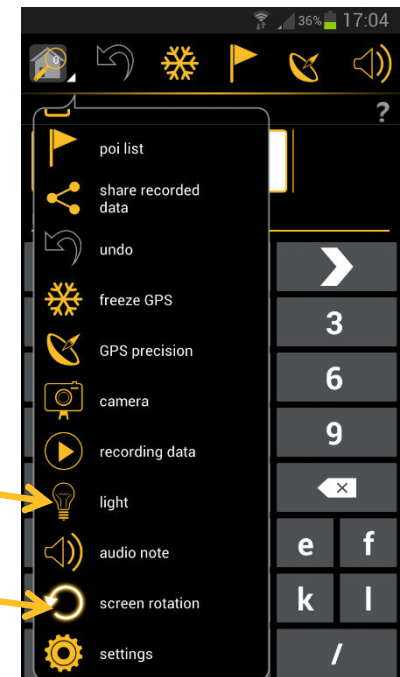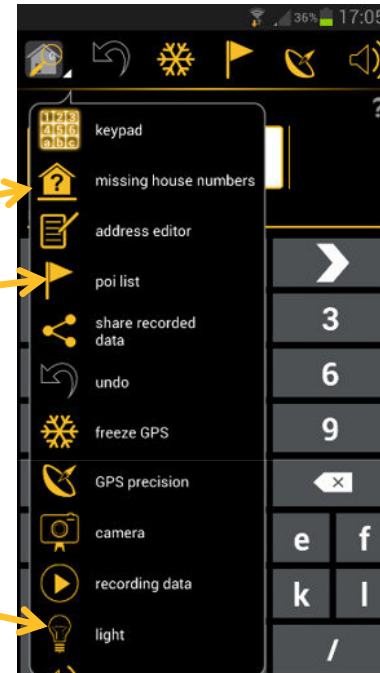
Future developments: Version 3.3

Planned completion date: Summer 2014

- **Gamification:**
  more fun through

  ✓ **team building**
  ✓ **challenges**
  ✓ **ranking list**

- **Map integration:**
  reach additional mappers thru

  ✓ **display of the current position on a map**
  ✓ **display of the total distance covered**
  ✓ **display of the missing house numbers on the map**
  ✓ **Precise positioning of the POI on the map**

How can I contribute?

Step 1: Read the OSM Wiki page

http://wiki.openstreetmap.org/wiki/Keypad-Mapper_3

Step 2: Find an area with missing addresses

http://overpass-api.de/hausnummern.html
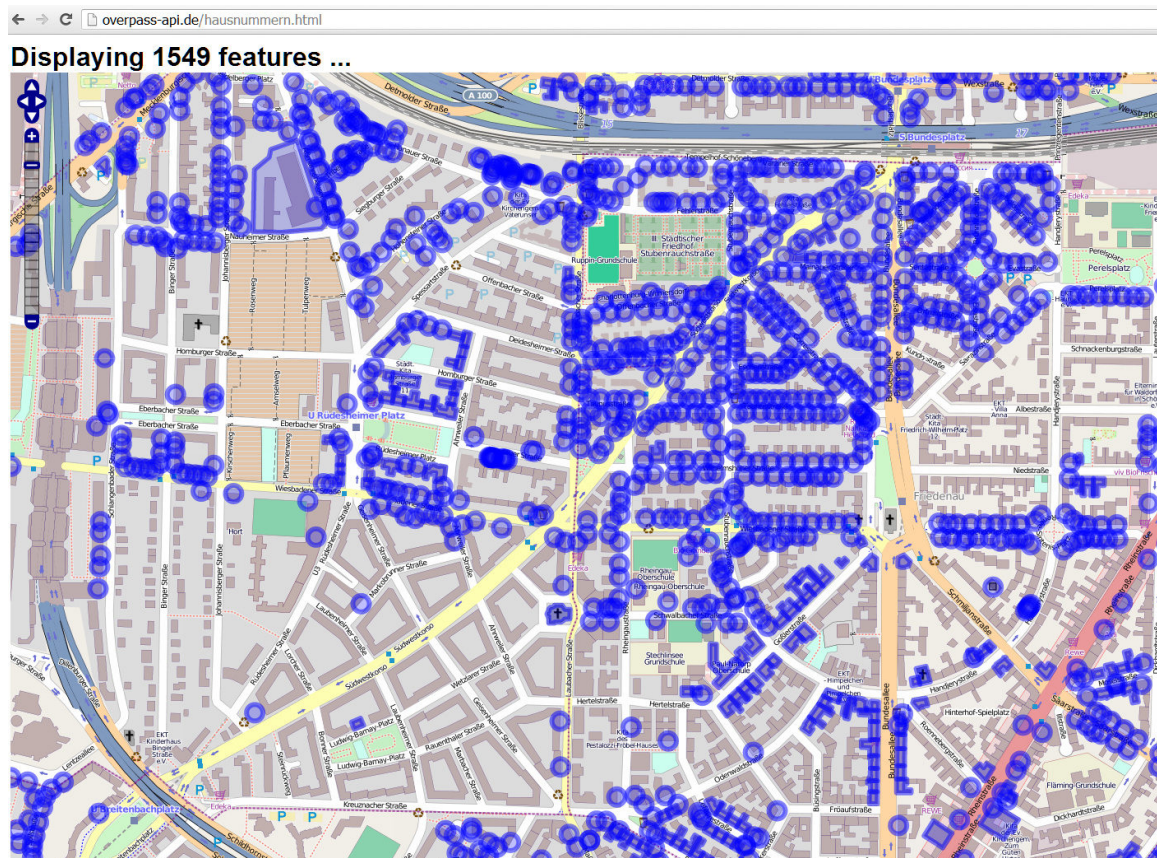
Step 3: Start mapping and have fun!