Micro-mapping with Smartphones for Monitoring Agricultural Development

Lutz Frommberger, Falko Schmid, Chunyuan Cai

CapacityLab

Universität Bremen*

Monitoring Development by Crowdsourcing Geo-data

• Geographic data of critical importance for monitoring development
• Ideally assigned to local stakeholders
• Volunteered Geographic Information (VGI)

Micro-mapping

• Assesses small objects where size and dimensions are relevant
• Goes beyond pin-point mapping
• Full geodetic properties for further analysis

mapIT: Mapping Original Geometry with 5 Clicks

• Intuitive, barrier-free interaction
• Allows for usage by people with minor technical skills
• Geometry calculation based on smartphone and camera sensors
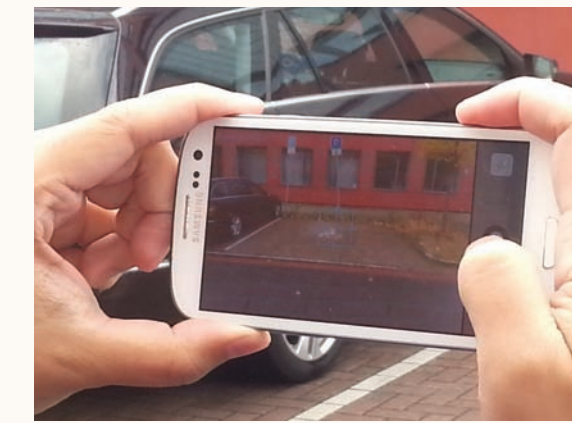• WYSIWYM: What you see is what you map

Application Scenarios

• Statistical information about agricultural development
• Monitoring progress and impact of projects
• On-site information in disaster cases (flooded areas, plant diseases, etc.)
• Documenting archaeological sites, polluted areas, etc.

The mapIT Workflow

1. **Taking a photo**
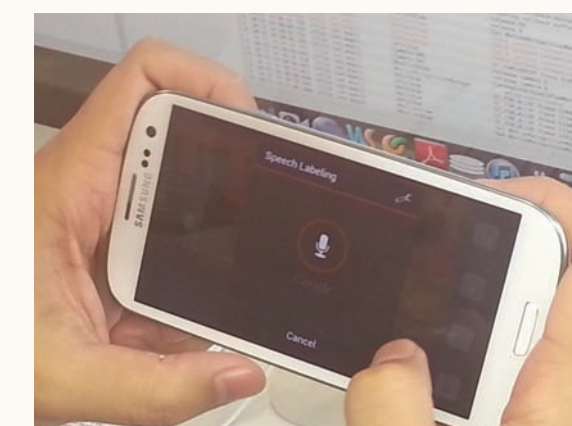The user takes a geo-referenced photo of the targeted object.

2. **Outlining the object**
The user uses the touchscreen to draw the outline of the object. The location of the segmented object is automatically calculated.
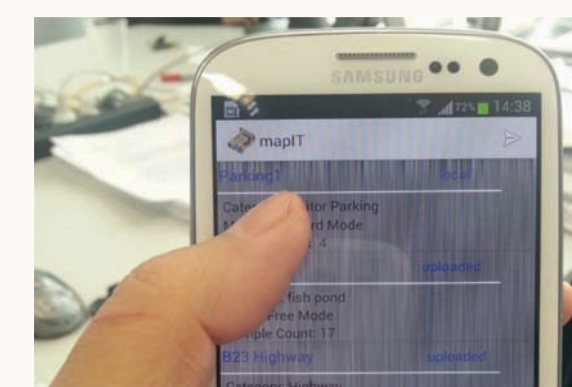
3. **Annotating by speech**
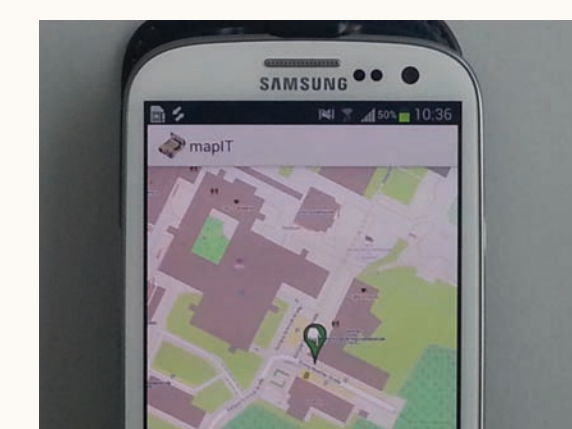The user semantically annotates the geo-object via speech input, pulldown menu or text.

4. **Uploading to a geo-server**
The annotated geo-object is uploaded to a geo-server of choice with one click.

5. **Inspecting entity**
Finally, the geo-object is ready to inspect, edit, and use (in Google Maps or OpenStreetMap, e.g.)