Mopsify: Gamified Spatial Crowdsourcing for Content Creation in Location-Based Games

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Happiest country in world
Day of traveller

Let’s travel!  Arrival  Sight-seeing  Relax
Location-based game

Targets in the game

- Find all controls
- In free order

Pictures of targets

Smartphone with positioning

Target
Geographic Distribution of O-Mopsi games

Games: 139
Length: 3.5 km
Targets: 12
Content type in location-based games

- location
- Location, geocache
- Location, photo, name
- Location, photo, name
Content creation for location-based games


- Target consists of **name, location, picture**
- Content needed anytime and anywhere
- Five design principles:
  1. Attractiveness
  2. Accessibility
  3. Location clarity
  4. Identifiability
  5. Lifetime of a target
Sources for content

1. Game admins create manually (time consuming)
2. Crowdsourcing (ok if game popular; quality control needed, Long review mechanism, tedious for both content creators and reviewers, subject to error)
3. Web-crawling (geo-tagged photos rare; copyright issues)
4. Open Street Map (photos are missing)
5. Social media (manual Representative image selection, location estimation measurements and relevant name extraction relies on external methods)
6. Gamified Spatial Crowdsourcing (our approach)
Mopsify Objective

To harness their **combined** power for content creation

- **Open Street Map - OSM**
  - Accurate locations
  - Relevant place names

- **Spatial Crowdsourcing**
  - Movement in real-world
  - Exercise
  - Sightseeing

- **Gamification**
  - Evokes enhanced contribution
  - Intrinsic motivations (purpose, enjoyment, growth, curiosity, passion)
Mopsify Gameplay

Game Information

Targets are selected

Reaching Target

Player feedback
Experiments and Players Feedback

Games Names: Kanervala, Keskusta and Kaislakatu
Region: Joensuu, Finland
Length: 2 - 3 km
Targets: 5
Players: 2
Total locations played: 15
Locations well played: 11
Inaccessible locations: 4

- Players expressed hesitation for taking photo of a school, as parents were picking up their Kids at the time of gameplay.
- Places such as schools, fuel stations, community centers and veterinary were reportedly less attractive
- Interesting objects such as statues, fountains, bird towers and benches etc. are also desired by players
Inaccessible Locations

Correct location was not accessible and the players end up taking photo of other nearby place to let the gameplay proceed. Reviewers conclude that such cases happened because the actual locations were inside other buildings which were closed at the time of gameplay.
# Example Locations well played

<table>
<thead>
<tr>
<th>POI Name</th>
<th>Café Rosé</th>
<th>Muistelupaikka</th>
<th>Kanervalan koulu</th>
<th>ABC Kanervalva</th>
<th>Joensuun vapaaseurakunta</th>
</tr>
</thead>
<tbody>
<tr>
<td>POI Type</td>
<td>cafe</td>
<td>place of worship</td>
<td>school</td>
<td>fuel</td>
<td>place of worship</td>
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<tr>
<td>Attractive</td>
<td>5</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>5</td>
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<tr>
<td>Accessible</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Clarity of Location</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Easy to identify</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Lifetime of target</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>
Conclusions and Future Work

• **Accelerated** content creation process

• **Less tedious** for both content creators and reviewers

• **High quality** content generated

• Accessibility issues and OSM data biased nature needs attention