Using Location Based Game MapSigns to motivate VGI data collection related to traffic signs

CG & GIS Lab:
Nikola Davidović, dipl. ing.
Prof. dr Leonid Stoimenov
Content

- Introduction
- State of the Art
  - Location Based Games (LBGs)
  - Classification of LBGs
  - Existing applications
- MapSigns game plot
- MapSigns LBG architecture and implementation
- Conclusion and future work
VGI is widely used collection process nowadays

VGI replaces traditional geo-data

Cheap and widely available technologies are driving the change

The emphasis is on “Popular” data

There is little to no interest for some types of data
- traffic signs, park benches, trash cans, pedestrian crossings

LBGs could be answer for motivation

Geo-data collection as side-effect of the gameplay
Related Work

- LBGs came to market with first GPS equipped mobile phones
- Classification of LBGs
  - Ludic
  - Pedagogic (Frequency 1550)
  - Hybrid
- LBGs producing geo-data as side-effect
  - CityExplorer
  - Urbanopoly
- Long playing sessions or Web-based data verification process
Mobile OS Technology

- Need to be accessible to large number of users
  - Different platforms
    - Android
    - iOS
    - Windows Phone
  - Technologies that enable development for different platforms
    - Xamarin
    - Phonegap
    - HTML5, CSS
- Our choice: Android – Java and Eclipse IDE
Map Signs game plot

- Chase game with two teams (thieves and cops) racing to the same destination
- Cops start 20 minutes after thieves
- Each team collects traffic signs, for thieves those are robberies and for cops those are evidences
- After the both teams get to the final destination, judge rules who is the winner
- Judge compares and accepts or rules out collected traffic signs
- Each collected sign lowers the elapsed time
MapSigns architecture

- Location-based game subsystem.
- Official geo-data subsystem.
Profile setup

Choose Team.

Add MapSign.

See added signs on the map
Explicit order signs

Danger signs

Warning signs
Specific traffic signs

- In most cases Warning signs
- Related to the specific toponym
- Require additional description and image
GinisLS system

- GIS for local municipalities, developed in the CG&GIS laboratory
  - GinisLS Desktop (GinisLS Client and GinisLS Server)
  - GinisLS WebGIS (GinisLS WebGIS, GinisLS WMS&WFS)
GinisLS Desktop

- **GinisLS Client**
  - Additional editing of traffic signs, adding specific attribute
- **GinisLS Server**
  - Allows simultaneous editing of multiple GinisLS users
GinisLS WebGIS

- Dissemination of information on the WebGIS
- Enables players to see how their contributions help others

GinisLS WMS&WFS

- Supports visualization and search of traffic signs
Conclusion

- Still work in progress
- Requires real world testing and gameplay tuning
- Could kickstart geo-data collection process of “unpopular” data that are frequently found everywhere

Future development
- Gameplay improvement
- Game adoption checking
CG&GIS Lab
University of Niš
Faculty of Electronic Engineering

Aleksandra Medvedeva 14, 18000 Niš
Serbia

Nikola Davidović, dipl. inž.
e-mail: nikola.davidovic@elfak.ni.ac.rs

Tel.: (+381 18) 529-500
Fax: (+381 18) 588-399
e-mail: info@gislab.rs
http://gislab.elfak.ni.ac.rs